The Plough, the Loom, and the Anvil.

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From the Cumberland [Maryland] Civilian.

ON THE BEST MEANS OF BRINGING INTO ACTIVITY THE RESOURCES OF CUMBERLAND AND ITS VICINITY.

Letter to COL. C. M. THRUSTON, *from* J. S. SKINNER, *Editor of "The Plough, the Loom, and the Anvil."*

Cumberland, June 28, 1848.

MY DEAR SIR:—Without attempting appropriate acknowledgments for your hospitable reception and entertainment pending the late Convention of enlightened citizens interested in the vast resources that characterize this favoured region; the only return I can offer, poor as that may be, is, to submit—and that only in strict reference to the agricultural interests involved—such reflections as occur to me on the *obligations of the government* to promote the practical development and use of these resources; and here, sir, it may be asked at once—For what purpose did a munificent Providence bestow such a rare union of all the powers and elements for manufacturing industry of every sort—elements of all the arts and comforts that distinguish civilized from savage life?

It is not to be denied that in the very beginning of every great industrial purpose, the question presents itself as to the *cost of fuel* to be employed in its execution. A modern writer, distinguished for his profound inquiries on these subjects, says—in the present condition of the arts, it may almost universally be considered, that, directly or indirectly, the changes which are to be produced, whether in composition or in form, in the raw materials of any manufacture, are effected by the *operation of heat*. If we look to any of the various chemical or metallurgic arts, we find the agency of heat necessary to liquefy the substances employed, so that they may be run into moulds, or separated from infusible components; to effect their perfect mixture, or to bring into play those chemical affinities by which their constitution may be altered, and new and more valuable products formed. Hence it is impossible to carry on those branches of industry in localities destitute of fuel: and where this is scarce and high priced, the cost of production of the manufactured article may be so augmented as to absorb all profit, and render the prosecution of that trade only a source of loss. In a similar manner, although not in the same degree, the mechanical arts are influenced by the cost of fuel. In localities where water-power is not available, it is necessary to employ *steam*. To produce any given motion, to spin a certain weight of cotton, or weave any quantity of wool or flax, there is required steam; to produce the steam, fuel; and thus *the price of fuel regulates effectively the cost of mechanical power*. Abundance and cheapness of fuel are hence main ingredients in industrial success. It is for this reason that in England the active manufacturing districts mark, almost with geological accuracy, the limits of the coal-fields. And do not these elements, with which you are here surrounded in such profusion, and this experience of the greatest manufacturing people in the world, indicate, as with the finger of God himself, that here too should great manufacturing establishments arise?

But the first question is, how are your great natural resources to be brought into play anywhere—what policy will best develope them? As one of the humblest organs of the agricultural interest, I am more anxious to know, for it never yet happened that a nation exclusively agricultural ever was distinguished for wealth and greatness.

Would it not, then, be an impious impeachment of the wisdom of Providence, to say that these great treasures were to remain to all eternity locked up in the bosom of your mountains, and may not that policy which would preclude the development and use of them, be regarded as a monstrous perversion of the obvious designs of nature? Nay, does not such a policy fly in the very face of nature, bearing on its own front, not only the stamp of folly, but the more hideous aspect of black ingratitude? "God," saith the wise man, "has made man upright, but he hath sought out many inventions;" and does not that seem to be a crooked and mischievous political invention, that would lead us to turn our backs upon such resources of wealth and power, and to go to foreign countries for coal and iron, which, when they come, represent almost exclusively the agricultural products of other countries, consumed in their production; instead of procuring them at home, where their value would be made up of the produce of American ploughs and harrows?

Nothing, you may be assured, sir, can be further from my wish or purpose, than to contemplate in the narrow and murky aspect of a party question this or any other industrial problem which my position and duties lead me to study in the course of my labours to promote the agricultural interest. Except as it concerns the cultivators of the soil, it concerns not me the value of a bushel of coal or a pig of iron, what party is in the ascendant for the hour or the day, the week or the year. What you, what we all desire to know is, what measures of individual enterprise, favoured by a wise policy of government, will most fully and profitably bring into play the prodigious resources which lie here unemployed in the bowels of the Alleghanies, in such manner as will best conduce to the true and legitimate ends of all good government, the general prosperity of the country. On that point I come now to speak, hoping not, as I desire not, to do the least injustice or give the least umbrage even to the prejudices of candid men in the honest pursuit of truth, which every honest inquirer is bound to follow, wherever it may lead.

In my humble judgment, we have too often, lately, seen the worthy followers of various branches of industry falling into the grave error of holding conventions—not to see how *consumption can be increased*, but how *production may be diminished!* The policy that takes that direction, always goes from bad to worse, for though a man may abuse a good appetite, what should we say of the doctor who would seek to cure him by depriving him at once both of appetite and food, and so starve him to death in the way of relief?

Thus the owners of coal mines in Pennsylvania have had meetings to restrain the production of coal within the limits of consumption, and the wool-growers too of Pennsylvania, and Ohio, have had meetings for a similar purpose in reference to their great staple.

But a little while since, the planters of the South had a meeting, and appointed a committee, with instructions to endeavour to devise means for restraining the growth of cotton within the limits of consumption, and thus save them from impending ruin; and throughout the planting States, the papers are now filled with recommendations to substitute the cultivation of food for that of cotton, the price of the latter having fallen below the cost of

production. The farmers, on the other hand, disappointed of the great demand promised them in Europe, are storing up their grain, with a view to restrain the supply within the limits of consumption, and thus enable them to maintain the price until some new potato-rot or other calamity shall enable them to obtain a market abroad in lieu of that at home, of which they have been deprived. The iron-master closes his furnace and his rolling-mill, in hopes of reducing the supply within the limits of demand. The coal men of Pennsylvania but recently stopped work for about two months, hoping to reduce the supply within the limits of demand. Woollen and cotton mills are closed because the supply of cloth exceeds the demand. Machine-shops and paper-mills are closed, or working with diminished force, because the supply of machinery and of paper is in excess of the demand. Similar phenomena present themselves to view in every direction throughout the Union. There is too much of all the good things needed for the support and comfort of man, and for his improvement physical and mental—too much of all those good things for which men are willing to labour; so much, indeed, that everywhere men are combining for the purpose of diminishing the supply: and yet at no period during the last six years has the labourer found it so difficult to exchange his labour for food, clothing, or furniture, or for the machinery of production by aid of which to enable him to obtain larger supplies of those good things. Labour is superabundant, and the labourer cannot earn wages to enable him to purchase food, or clothing, or iron, or paper, the consequence of which is that food and clothing, and iron and paper, are also superabundant. Is there not within your observation a great redundance of labourers now, in and about Cumberland, vainly seeking employment, that, if they could find it, would be good and willing customers to the farmer and the horticulturist?

We desire to keep down the supply of fuel, one of the great necessaries of life, lest we may not be able to obtain for it as much food and cloth as is needed for the maintenance and comfort of those who produce the fuel. The men who produce food and wool desire to keep down the supply of those essential articles, lest they should not be able to obtain in exchange therefor as much fuel, or iron, or clothing, as is needed to supply their wants: and the producers of cloth store away their products, because they cannot obtain in exchange for them the same quantity of food, and wool, and iron, that has been expended in their production, and would be needed for their reproduction. Such, my friends, is the spectacle presented to view throughout the Union, in this year of our Lord, one thousand eight hundred and forty-nine, at the close of the third year of the revenue tariff of 1846, under whose "benign influence" labour and capital were to be emancipated from the thraldom imposed upon them by the tariff of 1842.

Three years since, how different was the spectacle presented to our view! Then, men were everywhere seen meeting together for the purpose of combining their exertions for the increase of production; and *the more it grew the faster was the ratio of increase*, and the more it had continued to grow, the faster would have been that ratio. The consumption of anthracite coal had grown from one to almost three millions of tons, and because of the increase in the quantity required to meet the demand, the producers were enabled to send it to market more cheaply, enabling the consumer to apply more of his wages to the purchase of food and clothing, and giving to the farmer an immense market *not only among miners but also among miners' customers*. The consumption of iron had grown from less than 400,000 to 750,000 tons, and the men who mined and smelted the ore consumed largely of food and cotton, while the rapid increase in the means of transportation enabled the producer of food and cotton to send them to market at a constantly decreasing cost of labour and manure. The cotton manufacture had

grown from 300,000 bales to more than half a million, and the men, the women, and the children, who spun the wool and wove the cloth, were enabled to consume largely of food and clothing. The coal men, the iron men, the cloth men, and the paper men, were consuming food, and timber, and bricks, and stone, and iron ore, and all other of the products of the land, and the owners of land, and the producers of food and of the materials of clothing, were thus enabled to consume largely of cloth and paper, and iron, and all other of the commodities required for the maintenance and improvement of their condition. Thus was made a market on the land for the products of the land, to an amount exceeding that of 1842 by more than a hundred millions of dollars in a single year, and that market was due to the existence of the tariff of 1842.

Men were then everywhere combining their efforts for the purpose of rendering their labour more productive, and consequently more valuable, and so successful were their efforts that not only were they enabled to consume twice as much cloth and iron, and fuel, but they exported so largely that they were enabled to bring up the consumption of foreign merchandise to the standard of the years of the highest prosperity ever known in the Union. This, however, was not all. In addition thereto, they paid off much of the debt that had been incurred in the last four years of the compromise tariff, when mines, furnaces, and mills were closed because of the great diminution in the power of consumption that had been experienced under the free trade system.

"I was well, I would be better, and here I am," was the inscription upon the tomb of a man who undertook to doctor himself when in sound health, and paid the forfeit with his life, and such might now be the inscription upon the buried hopes of the farmers and planters of the Union, who united for the destruction of the tariff of 1842. They were "well," and they "would be better." They had enjoyed the *blessings* of free trade in 1840, '41, and '42, when food was almost valueless, because mines, furnaces, and mills had been closed, and their occupants—consumers of food—had been driven to the West, there to become producers of food. Just recovered therefrom, they placed their affairs in the keeping of men enamoured with the doctrines of free trade among *nations*, and who did not see that every attempt made in that direction had been attended with a diminished power of trading between *men and their fellow men*. Trade with foreign nations was almost free in 1841 and 1842, but never in the history of this country was trade among our own people so restricted. Men were then, as now, combining their efforts to diminish production, because consumption had been so vastly diminished, and with every diminution of production the power of consumption still further diminished, as is now being and ever will be the case. In defiance of experience, however, it was resolved to prostrate the system under which the nation had been resuscitated, and the tariff of 1842 was doomed to die. It was everywhere proclaimed that protection was "a war upon labour and capital," and tended to decrease, by "hundreds of millions" annually, the productive powers of the nation. The head of the Treasury Department was required to furnish a statement of the extent of taxation imposed by the system, and then was given to the world probably the most extraordinary document (by some said to be among the ablest) ever issued to the world by any man invested with the important powers and duties of such an office.

It was therein shown that upon certain protected articles, the whole people were taxed for the benefit of a certain small portion employed in producing those commodities, to the extent of ninety-five millions of dollars, while the amount of duties paid on them into the Treasury was but seventeen

millions. The manner in which this result was obtained is curious, and is strikingly illustrative of the want of practical knowledge possessed by the author of this important document, and which, in my humble judgment, too often distinguishes great politicians as well as men renowned for science in other departments.

The amount of pig-iron produced in the Union was first set down in the Report of the Secretary at 745,072 tons. Against this a tax of $9 per ton was charged, that being at that time the duty thereon, and the amount of this *tax* was .	$6,705,468
Of this, 300,000 tons were stated to be converted into bars, and as the duty on bars was $17 and $25, *the larger* of these sums was selected to be charged as the *tax* paid on the whole, *in addition to the tax already paid on the pig*—say . .	7,500,000
72,536 tons being converted into sheet, rod, and hoop iron, there was next charged, *in addition to the taxes already paid on the pigs and the bars*, $56 per ton—say	4,122,016
Of the pigs, 372,537 tons being converted into castings, upon which there was charged, *in addition to the tax already paid on the pigs*, $56 to $112 per ton—say	20,862,017
Of the bars, a portion being converted into nails, and other hardware, upon which there was charged, *in addition to the taxes already paid, first on the pigs and then on the bars*,	16,416,178
And thus we have a total *taxation* of	$55,605,679

Being about $75 per ton, or almost as much as the average price at which the whole quantity had been sold.

The Secretary thus proved clearly that the man who paid $80 for a ton of castings, was taxed for the benefit of the persons engaged in its production, first, upon the pigs	$9
And then upon the castings, from $56 to $112, the average being given at about	60
The *tax* was therefore	$69
And the true value of the castings only	11

The unfortunate man who purchased nails, was, however, shown to be still worse treated. Paying $100 for a ton, he blindly supposed that to be the price of the commodity he had purchased, but the Secretary proved that he was by that very act imposing upon himself a *tax* for the support of the maker of nails to the following enormous extent:

Tax on a ton of pigs . . .	$9
Tax on a ton of bars . . .	25
Tax on a ton of nails . . .	60
Total tax	94

And thus the real value of the nails was reduced to six dollars.

The manner in which the consumers of coal were shown to be taxed was quite as extraordinary. The whole quantity produced was set down at 4,347,659 tons, and the taxation thereon at $1·75, making a total of $7,608,403. Thus the man who bought coal in Pittsburg at 4 cents per bushel, or in Wilkesbarre at $1 per ton, was shown to be paying the enormous tax of $1·75, being the sum that the domestic product was held by the Secretary to be *increased in price* by the existence of a protective tariff. It is true that he appeared to be somewhat uncertain if the whole amount of the duty were added to the price of the domestic article, (and well he might be so,) and

furnished his readers, in another column, figures of somewhat smaller dimensions, how obtained I know not. There the tax for the support of the producers of iron was reduced to about $37,000,000; and that for the support of the producers of coal to $6,869,000: being about a dollar and sixty cents per ton, or *more than the average price of all the coal* sold at Pittsburg, Wilkesbarre, Pottsville, Mauch-Chunk, and Lackawanna.

Taxation for the benefit of the few, and the consequent impoverishment of the many, were thus shown to be very great, and the remarkable part of it was, that both tended to increase as the people acquired the power to consume more of the commodities taxed. The more rapid the increase of wealth, the more roads would the people make, the more iron they would consume, the heavier would be the taxation, the greater the tendency to general impoverishment, and the greater the inability to pay for the commodities taxed. The power of the people to consume iron doubled under the protective system in a very short period, and the taxation was but 55 millions; but had they grown rich twice as fast, and been thus enabled to consume quadruple the quantity of iron, the taxation would have been shown by this report to be 110 millions, and the tendency to impoverishment twice as great. In 1842, when a large portion of the community was unemployed, and when production was therefore small, taxation, according to the Secretary's theory, was also small, and they *should* have grown rich, but they remained poor in spite of the theory. In 1846, when the tariff was to be reduced, and when everybody was employed, and production was large, consumption was larger, and therefore the Secretary was enabled to prove that the nation *ought* to grow poor, but it grew rich in defiance of all theories. Were the Secretary now to measure the amount of taxation, he would find it reduced, notwithstanding our great increase of population, for his doctrine has nearly closed the mines and furnaces, and rolling-mills, and cotton-mills, and woollen-mills of the Union, and thus effectually curtailed the power of consumption. It would, however, be difficult to prove that the people were being enriched by a system like the present, that renders it daily more and more difficult for the labourer to exchange his labour for food, cloth, or iron, as we see to be the case.

Erroneous as this statement now appears, it was put forward as truth, and with a gravity equal to that exhibited in the last report of the same officer, when claiming for his tariff all the results of the potato rot, the great railroad speculation of England, and the disturbances of Europe, by which the supply of grain from the Baltic had been cut off, thus leaving for our farmers an opening to send to the people of England a small amount of food, in part payment for the large quantities of food daily imported in the forms of cloth and iron. The farmers of the Union were told to see for themselves the enormous amount of taxation to which they were subjected, and to compare the situation of a man in Detroit with that of one on the opposite side of the river that separates it from Canada, who could purchase cloth and iron at one-fourth less price, because of the enjoyment of perfect freedom of trade. It appears, however, never to have entered the mind of the Secretary to ascertain whether or not the Canadian *could or could not consume as much cloth or iron as the man in Detroit.* Had he done so, he would have found that the power of consumption of the former was less by one-half than that of the latter, because, under the system of free trade with England, the consumer was unable to take his place by the side of the producer, the consequence of which was that the land and its owner were both being exhausted. Doing so, he might have understood why it was that land on the one side of the river, where cloth was highest, was worth four times as much as on the other, where cloth was lowest. He might then, too, have understood why it was that almost every labourer land-

ing in Canada—the land of perfect freedom of trade—desired to place himself in the United States, the land of comparative protection. He might have satisfied himself that free trade, low wages, and almost valueless land, were to be found associated in all the colonies of England. These things, however, were "not dreamt of in his philosophy."

His tariff, urged on the planters and farmers as a means of enriching themselves, was adopted, and the result we are now witnessing. Iron, which two years since was worth in England from ten to thirteen pounds, is now worth five, and the iron-masters of the country find themselves ruined by circumstances that could not have been anticipated, and over which the nation has exercised no control.* Cotton and woollen mills have in a great measure ceased to be built. The consumers of coal are diminishing in number, and mines have ceased to be opened. The places at which the food, the wool, the coal, and the ore, were on the spot exchanged for the labour required for converting them into cloth or iron, are being closed. Exchanges are suspended between the labourer who produces food and wool, and the other labourer that desires to be a consumer of food and wool, and there is consequently a glut of all the commodities necessary for the support and for the enjoyment of man; and we see men seeking relief in conventions to reduce production, instead of uniting to increase the powers of consumption.

Food is superabundant, but the labourer finds increased difficulty in obtaining it, while the producer of food finds increased difficulty in obtaining cloth or iron. Coal is superabundant, but the labourer finds increased difficulty of obtaining fuel, because he cannot sell his labour. Iron is superabundant, yet the farmer finds increased difficulty in obtaining roads upon which to go to market. Cloth is superabundant, yet the farmer finds increased difficulty in converting his wool into cloth. Cotton is superabundant, yet the planter finds increased difficulty in converting it into food, or cloth, or iron—and all this because labour is superabundant and unproductive, and the labourer's power of consumption is reduced accordingly. The productiveness of labour is rapidly diminishing, and the productiveness of capital is as rapidly diminishing, by aid of a system that was to emancipate labour and capital from restrictions that the labourers and capitalists were told lessened by hundreds of millions the productive power of the Union.

The productiveness of labour is now far less than it was three years since, whereas it should have augmented, and would have done so, had the tariff of 1842 been permitted to remain. It is to this great fact that all these conventions are due. The power to consume coal and iron, and cloth and wool, and paper, diminishes instead of increasing, and there-

* In a New York paper, I have just seen the following statement, which speaks for itself, and which cannot be disputed:

"*Railroad Iron.*—This article is now sold in this city, of English manufacture, at about $12 per ton, which is death and destruction to the American manufacturer and the American labourer, in the iron workshops.

"The mills now in operation only live on their old contracts, making iron ordered long ago, as in the case of the Hudson River Railroad, whose rails the Trenton and Boonton mills are making at $37 50 per ton. This is a difference of $25 per ton; and when the contract was made, it was made as low as the mills could afford it, or the company could get it; but the difference shows what ruin the Tariff of 1846 is creating for American labour and American ore.

"To be independent, a nation must not only make its sword, but have within its bosom the *material* of which it is made, and of that material make it. To be riding eternally on rails made in British workshops, and by British hands, is but little better than living on British laws and under British customs; and surely it is paying Britain the highest tax and the highest compliment."

fore it is that men are everywhere combining to diminish the supply of all those good things. Of one thing, and one only, the production increases and that is food. Every man that is driven from the mines, and furnaces and mills, endeavours to seek the West, there to produce food, and to become a rival to the farmer and the planter. The new States are growing with unexampled rapidity, and every man settled therein becomes at once a competitor with the farmer of the old ones.

Over *two thousand* passengers are stated to have disembarked at Milwaukie in eight days of the month of May last. The positive increase thereby of the population of Wisconsin can hardly fall short of *fifteen hundred*. One thousand more are said to have landed during the same period at Green Bay, Southport, and Racine. The number added to this young State by immigration is estimated at sixty thousand per annum—which the natural increase must swell to one hundred thousand. And, let the farmers of the old States mark it well, all these are to become competitors with them, when a large portion of them might have been kept here in the old States as customers, working up coal and iron, and cotton and wool.

What we need, sir, as it seems to me, is combination to increase consumption, and not to diminish production. Every step in the one direction is attended with constantly accelerated growth of power, while every step in the other is attended with an effect directly the reverse. The more that is produced, the more rapidly capital is accumulated, and the more rapid is the growth of the power of production and consumption. The tariff of 1842 was a law for promoting the power of combining for the purpose of exchanging labour and food, and wool, and lumber, and stone, for cloth and iron. Its object was that of enabling labour and capital to combine for rendering productive every species of property, whether that of the small owner of twenty acres of land, or that of the great proprietor of extensive plantations—the little owner of a horse and cart, or the great proprietor of a rolling-mill or foundery—and it did its work effectually, doubling the power of farmers and labourers to consume cloth and iron. That of 1846 is a law for preventing men from combining their efforts, and for diminishing the power to exchange labour for all the good things that the labourer—agricultural or manufacturing—needs. It is a law for deteriorating his condition, and *it is doing its work effectually*. Let the former be restored substantially, and let specific be substituted for *ad valorem* duties, and the power of consumption will be restored. Exchanges will then again recommence. Mills and furnaces will then be built, and mines will be opened, and houses for workmen will be needed—and labour will cease to be surplus, and then food and cotton, and wool and cloth, and coal and iron, will cease to be so, for of all of them there will be increased capacity of consumption. The restoration of that law would produce an universal demand for labour, and wages would rise, and men would then be seen everywhere combining for the purpose of increasing production, instead of, as now, combining for its diminution.

To that great object should all your efforts be directed. Every man among us should endeavour to diffuse among his friends and neighbours the information that is needed to make them understand the causes of the existing paralysis—of the wonderful change that is exhibited throughout the country. Let each and all of us do this, and the time cannot be far distant when we will see the substantial and permanent re-adoption of the system under which we doubled our consumption of iron and cloth in the short period of four years, and paid off a large portion of our debts abroad, widely different from the present one, when our consumption of both is stationary, and when our power to import foreign cloth and

iron is maintained only by the daily contraction of huge debts, entailing upon us a perpetual demand for the payment of interest. To the Compromise Bill were due the bankruptcy of Pennsylvania and Maryland, the repudiation of Mississippi, and the disgrace of seeing the securities of the Union hawked through the markets of Europe, without finding purchasers. To the tariff of 1842—brief as was its existence—are due the restoration of public credit, and the fact that throughout Europe men are everywhere seeking the securities before so much despised.

On this one question, which so vitally concerns all, and especially the Farmer and the Planter, let us be for once united. Let us keep this one subject free from the over-heated arena of party strife. Say to politicians, of whatever name or caste; dispute and scuffle as you will for the high places of power and patronage, but let the public policy be so shaped as to develope and bring into practical use and enjoyment the great resources, with which an All-wise and fore-casting Providence has enriched our country. Unlike other nations, restricted in extent, in climate, and in capacity to produce and manufacture all that is essential to national independence; we have them all within the almost limitless expanse of our own domains. As our position is peculiar and our own inherent capabilities unlimited, let our public policy correspond with our position and our means. Let us delve our own coal and forge our own iron. To neglect them would be to forsake our own and to go in search of strange gods. Instead of sending our cotton to the looms of Manchester, and our wool to the looms of Leeds, let us force the looms to come to the cotton and the wool. Instead then of importing millions of the products of European agriculture in the shape of cloth and iron—the weavers of cloth and the manufacturers of iron will be drawn here to consume the wool of our flocks and the grain of our fields. Then, in a word, the loom and the anvil will take their natural place in social and thriving proximity to the plough; and, as advised by Jefferson and Jackson, the manufacturer will take his place by the side of the agriculturist.

Truly yours, J. S. Skinner.

PRICES OF WHEAT.

Aggregate average prices of wheat for the last weeks in December, for the last seven years, from 1842 to 1848, inclusive, in fifteen of the principal manufacturing districts, and fifteen of the commercial towns in England:

Years.	Agricultural towns.		Manufacturing towns.	
	s.	d.	s.	d.
1842	48	0	46	10
1843	50	3	50	5
1844	45	11	45	10
1845	56	3	55	4
1846	63	3	62	9
1847	53	6	55	3
1848	47	1	48	4

The fifteen agricultural towns chosen for the above averages are—Guildford, Ipswich, Canterbury, Woodbridge, Lincoln, York, Morpeth, Northampton, Newark, Gloucester, Chelmsford, Colchester, Royston, Bury, and Taunton.

The manufacturing and commercial—Leeds, Sheffield, Hull, Manchester, Birmingham, Leicester, Nottingham, Derby, Norwich, Wakefield, Newcastle, Worcester, Coventry, Bristol, and Liverpool.—*English Paper.*

LECTURE ON AGRICULTURAL CHEMISTRY.

PUBLIC SENTIMENT AS TO AGRICULTURE—WHO ARE THE REAL PROMOTERS OF ITS IMPROVEMENT?—WHO ARE THE "PRACTICAL MEN" AND WHO NOT—BALTIMORE ATHENÆUM, ETC.

When we commenced, more than thirty years ago, the systematic collection and diffusion of agricultural knowledge, through the medium of a regular periodical, with a view not only to practical improvement, but to a higher and more just conception of *the art of cultivation*, as such, what we then ventured to anticipate was chiefly the establishment of a central and convenient repository—the construction, as we may say, of a tank, in which to collect the *experience* of observant men, willing and able to communicate the results of personal observation and practice in the field, to be thence redistributed more widely and equally over the land. We hardly dared, in the beginning and in the then state of public feeling and knowledge, contemplate, much less call attention to agriculture *in its connection with the sciences*, which now so well serve by experiment and analysis to demonstrate the philosophical principles that belong as well to agriculture as to astronomy or mechanics, or any of the other arts or professions, generally esteemed so much more learned and dignified.

Gradually, and fortunately for the success and the honour of this greatest of all professions, a change has come over the spirit of the public dream, and the most practical men are no longer seen to startle or sneer at the suggestion of a natural connection between the sciences and the plough!—and moreover, we venture to say that the nearer and the more numerous and prosperous are the weaver and the smith, the tanner and the shoemaker, the saddler and the hatter, to those who are using the plough and the rake, the hoe and the harrow, the *more scientific and prolific will agriculture become.* Yes, reader, after all, you must have the remunerating market near at hand to stimulate to improvements in every thing. You must not expect that the comparative advantage of rich lands in new States, over poor land in the old States, is to be overcome and made up, by the application of science to agriculture in the latter; for science is a light, portable thing, and easily transports itself to any point where it can be sure of reward, and thus you must not expect to use its light, and keep it hid from those who have richer lands in new States. Its benefits will be as accessible to them as to you, and the sciences which teach you how to *restore* will teach them how to *preserve.* Hence the remedy for the evils that afflict an exhausted country, is first to provide itself with customers, by forcing or seducing those who are not producers, to come as near as possible to those who are. It is population that makes poor land rich, and that substitutes light for darkness, and paves the way for improvement. Hence it is that science is employing steam in so many forms and with so much effect for mechanics and merchants more than for planters and farmers. Speaking with the advantage of some little experience, were we called upon to say what *classes* of people are most indifferent to the spread of light that may reflect its rays on the course of the plough and the harrow, ensuring them at once more productiveness and more honour, we would designate, for the information of the farmer and the planter, his *representative* or *law-maker*, and his *commercial agent.* Yes, we verily believe that, take any journal designed exclusively to secure knowledge and profit and dignity to agriculture, and the proprietor may expect more encouragement from the same number of respectable mechanics, or lawyers, or doctors, or any other *class* of people, than from state legis-

lators, members of Congress, or commission merchants. We have tried it, and may say, thus have we found it—we speak not without experience. Members of Congress will very freely *vote* books—especially *military* books —no matter how costly, to themselves and their constituents, at the public expense, but ask them to subscribe on their own account!

In a certain great city of monuments, to which we are attached by so many endearing associations, there is a building whose purposes and arrangements do imperishable honour to its inhabitants. We sometimes, *en passant*, step in for the sake of enjoying the reflection—here is an institution that does more credit to the city in its enlightened and beneficent aims, than all its perishable monuments of stone and mortar. In separate apartments of this building are three different libraries, devoted to historical, to literary, and to commercial researches and knowledge. Now what we mean to note (and that in no spiteful spirit, but the contrary) as to the latter company is, its refusal to add to its collection the six volumes of "THE FARMERS' LIBRARY," containing in three of them, the five volumes (English copy) of "*Von Thaer's Principles of Agriculture*," and "*Stephens's Book of the Farm*," and "*Petzhold's Lectures on Agricultural Chemistry*," which alone—we mean the English copies—have lately, and within our knowledge, sold in this country for **$47**, while they were offered these and three volumes besides—American reprint—with many costly and coloured engravings, for **$12**. We only mention it as a matter of taste and discrimination on the part of the directors, to whose better judgment we are bound to defer. As to the appropriateness of such works, at once philosophical and practical to such an institution, we would only ask—Whence does commerce derive its elements except from the lands and the labours of the agriculturist? Without them, how could she lay a keel, or fill the hold, or spread a sail? What is the province of the merchant, but as a go-between —a mere exchanger of the fruits of the more productive industry of the farmer and the mechanic? Does it not import every young man, then, who aspires to the character of the merchant in an enlarged and liberal sense, to make himself acquainted not only with the natural and artificial products of every clime, but with the general principles and processes followed in their production? Are not such scientific and practical works, therefore, more worthy of a place in such a library than the *trashy novels* which make up, in very large proportion of number, the "LIBRARY" of a certain *American Institute?*

We are not doubting the value and the fitness of the works in the library to which we are here alluding. Far from it; and heartily do we wish it were in our power to contribute largely to its catalogue; but at present the most pressing question with us is the *bread question!* Nevertheless, we shall have some trifles to offer, when we can get time to pack them up, for the Historical Department in the same building, under the auspices of the gentlemanly scholar who favours it with his presidency.

Well, here have we spun a long yarn, when we only intended a line or two of introduction to the following *Lecture*, which of itself, had it been read by the Legislature of Virginia, might have prevailed with them to appoint an Agricultural Chemistry Lecturer—that is (which is not as easy as some may suppose) if they could have made sure of *finding a competent man*— for such a man would deserve not less than **$3000** a year, with some assurance of permanence to his employment; but in our wise republican country, this last advantage is reserved only for those whose *trade is war!*

But let us to the *lecture*, which we commend particularly to those who maintain that knowledge in agriculture can only be gained from "practical men," and that none are practical men except such as wear hob-nails in their shoes, dirty smock-frocks, and hands of horn.—

LECTURE ON AGRICULTURAL CHEMISTRY, AT SAXMUNDHAM, SUFFOLK.

BY J. C. NESBIT, ESQ., F.G.S., F.C.S., ETC.

On Thursday evening, Jan. 4, a gratuitous lecture was delivered by the above gentleman, in the new Market Hall, of Saxmundham, Suffolk, to between 300 and 400 of the farmers and other residents of the neighbourhood, the former constituting probably nine-tenths of the assembly. The occasion was one of unusual interest, and the attention of the meeting, having been secured at the outset, was exhibited throughout. The chair was taken by W. Long, Esq., of Herts Hall, to whom the agriculturists of the district are indebted for the erection of the handsome building in which so many of them assembled on the evening in question.

The chairman having introduced the lecturer as a gentleman who was connected with the agricultural and scientific school of Kennington, London,

Mr. NESBIT spoke as follows: Mr. Chairman and gentlemen, I feel very highly gratified at seeing such a numerous assemblage of gentlemen interested in the progress of agriculture; and I shall feel very great satisfaction this evening, in endeavouring, as far as I possibly can, to elucidate the science of agriculture with reference to the application of chemistry to its development. I am not come down to you with a vast amount of chemical apparatus; I have not brought here a prodigious number of curious things of which you might have wondered what was their use. I come to you this evening with the language of plain common sense; and with the operations which you are continually performing on your farms as the basis of my arguments, I shall see if I cannot, by applying to them the rules of plain common sense, elucidate the subject, and secure to you a greater knowledge of the *science* of agriculture than you already possess. Before doing this, however, I must make one or two observations. And gentlemen, I must, in fact, quarrel with you, because you arrogate to yourselves alone, what I think you ought not to claim for yourselves alone—the title of *practical men*. "We, we, we," you say, "are the practical men," as if there were no other practical men in the kingdom besides yourselves, and as if no one else understood the nature of things. Now, I mean to contend that the title "practical" does not belong to the farmer alone; and I have certainly some doubt whether it ought to be applied to the farmer at all, in its full signification. I will take, for example, the case of Mr. Tomkins, who is a capital farmer. He farms his land well; he keeps stock, and grows turnips, and does every thing in the best manner. Now, as a poor student in science, I want to gain from this gentleman some useful practical information. With this object in view, I say to Mr. Tomkins, "Pray, what have you got in your soil—what are its properties?" He replies that it is a sandy soil, a loamy soil, or a clay soil. "Yes; but what have you got in the one and what in the other?" "I don't know; I have not gone so far as that yet." I then ask, "What have you got in your manure?" and Mr. Tomkins, good, easy, practical man as he is, says, "I cannot tell you." If I ask him what his crops take out of the land, again he declares that he cannot answer my question; he knows that they take away something; he knows that if he sows wheat, barley, or any thing else, something or other is taken away by the crop; but what that something is he cannot determine. Lastly, if I ask Mr. Tomkins what is in the air and what in the water, he is still obliged to confess that he does not know. Now, gentlemen, I appeal to you whether the term practical, in its largest sense, will apply to Mr. Tomkins, while he actually knows nothing whatever of those things on which the success of the agriculturist peculiarly depends. I grant you that Mr. Tomkins looks at his crops, manures, and soils, in the whole, and that he has got some general idea of them as a whole; but then he never seriously considers what this whole is composed of; and what I propose to do is to extend his knowledge a little further; so that, instead of his attention being confined to those generalities on which it has hitherto been fixed, he should be made acquainted with every thing in the soil, in the crops, in the manure, in the air, and in the water. (Hear, hear.) Now, I ask you, gentlemen, as practical men, to say whether you consider that this knowledge would not be worth having, and whether it would not be well for every man, as far as it may be in his power, to seek to attain such knowledge. Well, now, having thus prefaced my subject, I shall at once commence the consideration of the manure made on the land; and I shall afterwards offer a few observations on the rotation of crops and the nature of those substances which are offered to the farmer under the name of artificial manure. And let me here observe that I shall be very happy, at the close of the lecture, to hear any remarks, or to answer any questions which may occur to any one present, having reference to any thing which I may have said; for some of the things which I intend to present to your notice may be so new, and so contrary to

ideas previously impressed on your minds, that you may doubt the truth of my statements; and the best way to settle any question of that kind is to argue the point at the close of the lecture. (Hear, hear.) Let us begin with the far-famed farm-yard dung, which is supposed to be so superior to all other things. It is that which grows the crops, and which, in the estimation of the farmer, is not surpassed by any possible combination of substances. Now, what is this farm-yard dung? It is formed by acting upon vegetable matter in some way or other. You either take a quantity of vegetable matter, and pass it through the stomachs of animals, where it is acted upon and the refuse passed out, or you put vegetable matter—as straw, or litter—in the yards, and allow the excrements of animals to be mingled with it, and a slow decomposition to take place. The whole being commingled and mixed together is known by the name of farm-yard dung. Now, a very little consideration will show that the whole of the material which is found by you, gentlemen, to be practically so useful on the farm is merely derived from vegetables; so that you are, in fact, applying the remains and refuse of vegetables to renovate the land. This is the whole secret of farm-yard dung: it is vegetable matter, which, when partially decomposed, is re-applied to the land, where it forms vegetables over again; so that you are continually working as it were in a circle. Thus the same particles of matter imported on the farm perhaps in the shape of oil-cake, first re-appear in the shape of a turnip, again as barley, now as beet-root, now as wheat—the cycle of changes continues until the identical particles are exported from the land as beef or mutton, or as grain. Now I hope I shall be able to offer one or two ideas with respect to the origin and nature of this farm-yard dung; and let me say we can never have our ideas too near the truth respecting the origin and nature of that which is so constantly under our notice. Some gentlemen have got an idea that animals have a mysterious power—of what nature it is impossible to say, but they imagine that it really exists—a mysterious power, by means of which they can change a turnip, or a quantity of oats or greens, into a superior manure for land; and that food must have passed through the animal before it can be really useful on the land. That is the idea entertained on this subject by ninety-nine farmers out of a hundred. I must proceed this evening to disabuse your minds of that erroneous notion; I must inform you that the manure obtained from animals is always dependent, as regards its value, on the food which the animal eats; and that the excrements of animals are always less valuable, and less powerful in manuring principles, than is the food consumed by those animals while producing the manure; that green food, ploughed into the land, will give more manure to the land than the *same food* eaten by animals. Not that I would recommend you, as a rule, to plough in your vegetables; but I wish you to remember that your sheep can deposit nothing on the land but what they have first received from the food; and that, under all circumstances, the amount deposited will be less than that received. Now let us look a little at this point. You know that in one of our ordinary fire-places, when coals are put in the grate and a light is applied to them, an action takes place which makes the air above differ from that below the fire: without any mention of the name of a single chemical element, you have only to apply your plain common sense in order to be aware that an action takes place between the air and the coals, producing heat, and that the air above the coals (in the chimney) is very different from the air below the coals, which enters at the grate. Now you give an animal a certain amount of food; that food is taken into the system: the constant action of the lungs, which inspire and expire the air, has the effect of bringing into the system a large amount of air. This air acts upon the food which is taken into the system. By the combustion or burning of a certain amount of that food, animal heat is produced, which keeps up the temperature of the animals, so that they get a higher temperature than the surrounding atmosphere. The expired air contains the result of that combustion, and resembles in composition the air of the chimney; another portion of food not used for producing animal heat is laid upon the bones, forming muscle, or fat; and what the bullock itself has no use for, is cast out of the system. Now, you observe at once that the animal, by acting in this way on the food, actually deprives it of certain constituents, and at the same time makes it less in amount; so that, in fact, the only real action is one which takes away certain portions of the food and renders the others more quickly soluble. All the soluble parts of the food are passed out in the urine, and all the insoluble parts in the excrements. There is a regular process performed in the laboratory of the stomach, the effect of which is what I have thus described. Now, the same thing takes place in the decomposition of vegetable matter. You lay down a large quantity of straw, and you let the water fall upon it, as well as the excrements of animals. You all know what takes place. The heap gradually heats, and this gradual heating is nothing more than the effect of the gradual action of the air upon it. Certain portions of the vegetable matter thus acted

upon by the air are consumed and taken away, and the bulk becomes less; so that, even in the process of acting on vegetable matter, you lose a portion, and it goes off into the air, just in the same way as the solid parts of coals pass into the air by means of the chimney. You all know that the solid parts of coal disappear and leave nothing but ash behind. The two cases are, in fact, identical. I may refer you to the case of a hay rick put up in too damp a state. In that instance, an immediate action takes place from the contact of the air with the moist hay, and that action continues increasing, until, at last, the whole bursts into a flame. Now, gentlemen, in either case, in the making of manure there is a diminution and a loss You must have seen the reek going off from the dung-heap, and there are other substances which also disappear in the air which you cannot see. If what I have stated be true, you will draw the conclusion for yourselves, that vegetables ploughed at once into the land furnish a greater amount of the substances adapted for the vegetation of plants than they would supply if passed through the stomachs of animals—that is to say, to give a plain, practical illustration of my meaning, if you chop up an acre of turnips, making them sufficiently small for decomposition, and plough that acre of turnips into the land, you will have more manure in the soil than if you fed a flock of sheep upon it, without the addition of oil-cake or any other extraneous manure. Again, take other green crops, such as rape, and plough them in, and you will have a larger amount of substances calculated to bring forth the next crop than if you passed that acre of rape through the bodies of animals. You may call this theory, gentlemen, but it is absolute fact: there is no theory about it. It has been tested by practical men, and I will give you one or two instances. A gentleman heard me make this statement when I was lecturing at Maidenhead—and let me remark that the gentlemen who composed my audience on that occasion were not quite so decorous as you gentlemen have shown yourselves this evening; for I heard some of them call what I said "gammon." (Laughter.) Now, notwithstanding its being "gammon," a certain gentleman determined to try whether or not the case was as I had represented. A gentleman named Mr. W. Trumper, of Dorney, near Windsor, having 20 acres of rape, ploughed in one or two acres in different parts of the field. The rest was fed off by sheep. These sheep were luxuriating every day on a beautiful meadow adjoining, and were folded at night on the rape. I was invited last Midsummer but one to see the effect of this experiment; and about a dozen practical men were invited to meet me upon the occasion. The land was gone over, and I could point out every place where the rape had been ploughed in. The wheat stood eight or ten inches higher than the rest; and in the judgment of these practical men there was more than a quarter of an acre difference between the places where the vegetables had been ploughed in and the places where the sheep had been fed off. More than that, I happened to meet Mr. Trumper at the annual dinner of the Reading Farmers' Club, when he told me the turnip crop succeeding was much better, and he fully expected to see it in the barley. Now, there can be no doubt that the ploughing in of turnips will have a similar good effect, and perhaps many of you gentlemen have in your recollection certain instances in which, owing to the severe frost rotting the turnips, it was necessary to plough them into the land; and when, contrary perhaps to the expectation of the farmers, a capital crop of barley was the result. I would not recommend you to forsake the feeding of sheep: I am now merely dealing with the facts of this case. It is a question of pounds, shillings, and pence, whether it is best to feed the turnips off or to plough them in, and therefore a case for the exercise of your individual judgments. In the instance of which I was speaking at Maidenhead it was found more favourable to plough in than to feed off, as that year the crops were excessive and the sheep high in price. A gentleman there was actually offering to give £2 an acre to any person who would send a flock of sheep on the farm to feed off the turnips. I at once said it would be better to spend 15*s.* per acre for ploughing in, and 25*s.* in guano, as the crop of barley would assuredly be better. Now, gentlemen, at the end of the lecture I shall be happy to hear any observations which may occur to practical men on this point, and to answer any objections which may be urged; and it must be particularly noticed that I leave out of the question for the present the mechanical action of sheep in treading the land, so necessary on some soils, and speak merely of the absolute amount of manure. To pursue the subject of this manure a little further, you see at once that the manure will vary as the food varies. If you use straw, or oil-cake, or turnips, the quality of the manure will vary accordingly, as the composition of these substances varies; and it will vary because the animal takes away only a certain proportion from each of these, and casts out the remainder as excrements. But the manure will vary, not only as the food varies, but according to the age of the stock. It is plain and palpable that the beasts which are already pretty nearly fattened will take far less out of the food eaten than lean, young,

and growing stock; because the young stock, having to form their bones and flesh every day, rob the food which they feed upon of a much larger quantity of valuable and nutritious matter than such as have nearly attained the fatted state. Not only does the quality of manure vary according to the food and the age, but the dung of milch cows is inferior to the dung of bullocks fed on the same amount of food. It is plain that if a cow is giving milk to young animals, the manure is robbed of some of its most valuable properties. If a chemist analyze milk, he finds it to contain some of the most important ingredients of manure; and of course, therefore, these ingredients are lost to the excrements. It is very clear that the value of manure will vary according to the kind of food, age of the stock, the nature of the stock, whether the stock gives milk or not, and whether it consists of sheep or of oxen. The seeds of plants contain the largest amount of nutritive matter; for as the purpose of the life of a plant is to reproduce its kind, we find that every other part of a plant is exhausted to produce the seed which shall give birth to another generation. When, therefore, seeds—as barley, oats, or oil-cake—are given to cattle, the animals will not only find more nutriment than in hay or straw, but the manure will likewise be much better.—Now, having thus spoken of the origin of manure, and having, I think, clearly proved to you that it is all produced from vegetables, and that animals have no power whatever to add one single atom to the vegetable matter received into their system, and that they deposit less in the land than they receive in the shape of food, let me next proceed to speak of the methods of manufacturing manure. And, gentlemen, you often mix your dung in a manner which I must say shows a great want of *practical knowledge*. I have seen manure placed in a position where all the waters from the outbuildings poured down upon it, and washed the soluble matter away into a neighbouring pond, there to poison the horses. I have gone among heaps of dung which were steaming away at a fearful rate, and my nostrils have instantly informed me of the escape of a substance which has a very high price in the market, yet the practical man appeared to be quite unaware that he was losing one of the most valuable ingredients of manure, namely, ammonia; he did not appear to imagine that he had any means whatever of helping himself. Now I wish to point out how pleasant it would be to the pocket to have a little more knowledge on this subject: it is the pocket after all which suffers most. You may term me theoretical, if you please; but I must say that I think there are as many crude theories among the so-called practical men as ever emanated from the brains of all the scientific men of the world combined. Now let us look at this manure. When the chemist comes to examine it, he finds that there are certain ingredients in manure, which are naturally volatile, or which become volatile in the process of fermentation, and go off into thin air, if not prevented; that there are other substances which are soluble in water, or become soluble in the process of fermentation, and which, if acted upon by water, are carried away; and that there are other ingredients which are neither very volatile nor very soluble. Now, to bring chemistry to bear no further than this, the question really is, how to stop the volatile substances from going into the air, and how to prevent the soluble from being washed away. It so happens that these very substances —the volatile and the soluble—are those which it costs most money in the market to import upon the farm, whether the farmer obtains them in the form of guano or in any other form. Now it is certainly very easy to arrest one of these wasting processes, that is to say the washing of the manure; there is no difficulty in preventing the liquid manure from being washed away; and whatever the farmer may say as to the loss being trifling, I am prepared to prove that on some farms which I have seen, of five or six hundred acres in extent, the loss was at least £200 [$1000] a year. Now this, I say, can in a great degree be prevented. If the farmer, or his landlord, will not go to the expense of having the farm-yard completely covered over like *a railway station*, he might at least, by shoots or gutters, prevent the rain from the buildings falling on the dung: the redundant liquid and urine from the dung-heap and cattle should be conveyed into a reservoir, and in dry weather pumped back again over the straw, which will thus more quickly suffer decomposition.* You are all aware that vegetable matter decomposes most readily in contact with animal matter. In illustration and in proof of this, I need only refer to the thatched buildings where pigeons are kept. You always find that that portion of the thatch where the pigeons deposit their excrements gives way first. While, therefore, you are to pump the urine back again, so as to allow decomposition to take place more quickly than it otherwise would do, the next question is how to prevent the escape of the volatile materials. Of these volatile matters one is called ammonia; and is easily arrested by

* A tank might be made at little cost, to receive this rain-water, and a pump put in it for common use.

means of gypsum, or, what is better still, sulphuric acid. The water in the tank ought to be kept slightly acid, by means of sulphuric acid, which will totally prevent the escape of ammonia. If no tank is kept, over all the straw, every day and every night, should be thrown a quantity of gypsum, and the same substance should be applied night and morning to the cow-houses and stables.—I come now to the difference between long dung and short dung. This is a long-disputed question, and the practical men have almost got to cudgel blows about it. Now it is quite clear that in bringing down long dung to the state of what is called spit-dung, you lose to a great extent; a certain number of substances are carried into the air, and at the same time the manure becomes to a certain extent decomposed, so that the fibres of the straw, and other vegetable substances, are deprived of their power of cohesion. Now, gentlemen, I am a great enemy to the excessive fermentation of manure. I believe that it ought not to be fermented to any thing like the extent that it is done in some places. It is often fermented till one-half is lost; and then we are told that a load of that will do better than a load of long dung. I grant that in some cases; but if 100 loads of long dung be put direct upon the land, and another 100 loads of the same dung be allowed first to decompose and rot until only 50 tons be left, I ask, will the 50 tons equal the 100 tons? Will one load of the latter beat two loads of the former? (Hear, hear.) I contend it will not do so well. If you take 50 pounds in one case, and 10 pounds in another, you will find in nine cases out of ten that the long dung has the advantage; because in making the spit-dung you have a large amount of volatile matter sent off to benefit not your land in particular, but the whole neighbourhood, which men are not now philanthropic enough to do on a large scale knowingly. (Hear, hear.) Well, then, gentlemen, we have seen that you may arrest the volatile matters, as the ammonia, by applying gypsum or sulphuric acid. I hardly like to name these things among *practical* men, lest I should be censured. I know that some persons have such an antipathy to chemical names as to consider them as any thing else rather than terms applied to designate certain substances in nature. But I will venture to speak of one or two other things by name. There is the charcoal or vegetable matter of this manure, which goes off into the atmosphere by the action of the air, in the same way as the coals disappear from a fire-place, where nothing is left but the ashes; the charcoal having assumed the form of gas and gone into the air. Now, a similar action takes place in the case of manure; and if it be allowed to proceed, almost every particle of the charcoal will pass into the air. Then there is hydrogen, another long name for one of the constituents of water. Another substance is nitrogen. These are also found in farm-yard dung, and they are apt to hop away into the air if decomposition be allowed to proceed too far. Therefore I recommend you not to allow decomposition to go beyond a certain extent, but to let the manure rot and decompose in the land.—I will now take another point, namely, the forming of manure heaps when the dung accumulates faster than it can be put upon the land. The best plan in such a case is to lay a bottom of mould a foot in thickness. Upon this the manure ought to be carted, each cart passing over the manure previously laid down. The manure ought to be watered copiously with dilute oil of vitriol (one part to twenty of water) or sprinkled with gypsum, if those substances have not been previously used. Upon every two feet in depth of the dung six or eight inches of mould should be placed, and when built to the required height a covering of earth eight to ten inches in thickness should be placed over all. In a compost-heap thus made, the escape of most of the valuable ingredients is almost entirely prevented. If any of the ammonia should escape the action of the sulphuric acid, it would be retained by the mould; and by the slow action of the air upon it, nitrates of either potash, soda, or lime would be produced. Whether you are aware of it or not, it is the fact that the saltpetre used by the French, in their battles subsequently to the first Revolution, was made from the floors of cow-houses, from old walls, and actually from the urine and dung of animals—the ammonia of these things being converted into saltpetre. Now that which produced such an immense amount of saltpetre sufficient for all the wars of Napoleon, when the French were cut off from the East Indies; instead of being allowed to escape, might surely be converted by you, gentlemen, to the purposes of agriculture, which I need not say are *very much better than those of war*.—I now come to another point—that of box-feeding, or the feeding of animals under cover. The best way of making your manure is, I think, either to make it under a large open shed, covered over, or to put your animals upon the box-feeding system followed by Mr. Warnes. I have seen the box-feeding, not only at Mr. Warnes's and Lord Torrington's, but in other parts of the country, and I must give it my unqualified approbation, as one of the simplest means—I do not say the best that could be devised—of carrying out the practical ends of the farmer. Mr. Warnes does not tie up his bullocks, but he has litter under them, and he strews gypsum over

this litter. The urine of the animals and the solid excrements are arrested; fresh litter is added when the first gets too wet; and this manure is continually trodden down by the feet of the animal, and this treading so solidifies it, that just that necessary amount of fermentation takes place which produces a good solid black dung.—I am not now going into the question of cooking food for animals; I shall leave that part of the subject for a future time. I must, however, now proceed one step further, which practical men will, I dare say, consider an absurdity. Gentlemen, my opinion is that the time will come when you will have your bullock-houses warmed by as genial fires as those in this room. I will tell you my reasons for thinking so. The food, or at least a portion of the food, which you give to animals goes, as I before told you, to keep up their temperature. Now the more cold to which an animal is exposed the more food is required to keep up the temperature, which must be kept up or the animal will die. We all know that in cold weather an animal parts with more heat than in warm; consequently he must consume a much larger amount of food to furnish this heat, and this is the reason, and there is no other reason, why you cannot fatten animals in winter. In the winter the animal merely consumes to keep itself comfortable. The animal only produces fat when he has got more food than is required to keep up the proper temperature of the body. If you were to keep a fat and lean animal without food, you would find that the fat animal would outlive the other for many days, in consequence of having been able, by excess of food at other times, to lay up a store for other days. You must not suppose that the animal lays up fat merely for your use; it lays up fat for the purpose which I have stated, and it is only when it is able to satisfy itself as regards warmth that it lays up a particle of fat. This, I repeat, is the reason why you cannot fatten animals so well in the winter as in the summer. Now, mark what is the idea of the practical man on this subject. The practical man never thinks of buying a pound of coals to warm the animal, and thus, at the same time, to save the consumption of food. Now I do not call that very practical; and I venture to assert that the more practical idea of the chemist will eventually be carried into effect. Instead of valuable food being consumed for the mere purpose of keeping up the animal's warmth, there will be a consumption of coals, which are much cheaper for that purpose, and then you will be able to fatten quite as well in the winter as in the summer.

[Extract from a late English Paper.]

POTATO DISEASE.

To the Editor of "The Dundee Courier:"

SIR:—As the time has now arrived when farmers begin to plant their potatoes, and as every one is anxious about the safety of his crop, it may be interesting and useful to communicate the following plan which I have adopted for three years, and with perfect success—so successful that I have never had a diseased potato. In the first place, let the seed be cut from end to end, rather than cross-ways, that some of the eyes of the rose may be in every plant. In the second place, the drill should be made a full yard wide, so that ample space may be allotted for working them up in the way they ought to be. In the third place, as soon as the potatoes are formed at the shaw, let the shaws be all bent to one side, and let them be furrowed up very high on one side, so that the drill presents the appearance of the ridge of a house, and the shaws grow out *at its side;* and, when the shaws are in this position, the rain is not conducted to the root, but is discharged in the bottom of the furrow. The process of bending the shaws in the way described, will cost about 1*d. per fall.* Last year I experimented on alternate drills, and the result was, that those drills that were not treated in this way, but left to the old course, were all diseased; whereas the drills that were prepared according to the plan I would earnestly recommend, were entirely sound—not one diseased potato among them. This plan is simple—all can put it in practice—and by following it, they will not, I hope, have to lament either a deficiency of crop or quality.

Yours, &c. DAVID MARTIN.

GEORGIA RAILROAD.

What argument could not accomplish, personal interest is rapidly doing for the South. The necessities connected with the law of progress, by which the United States are governed, have had their sway in Georgia especially, and as she was among the first, if not actually the first, to set up cotton factories within her limits, so she is now foremost among her neighbours in the work of building railroads; and we find in the Savannah Republican most cheering accounts of the advance made in the construction of the several lines. The principal one is the South-Western road, which connects Macon with Fort Gaines, a distance of about 150 miles, the cost of building it being estimated at about $1,500,000. Of this sum $650,000 is already subscribed, and upwards of 500 hands are employed. Twenty-five miles are already graded, and when the whole work is completed, it will not only open to the sea the finest cotton region of the State, but, by connection with other lines, afford easy access to several adjoining States.

The Muscogee Railroad, connecting Columbus with Barnesville, a distance of 75 miles, will not only afford an outlet for the iron and grain of the mountain region, but will give peculiar facilities to Columbus, from which the State cannot fail to derive great benefit. The Milledgeville road, from Gordon, on the Central road, to the capital of the State, a distance of 16 miles, is constructed not only with the view of rendering the seat of government permanent, but also of giving the planters of Central Georgia a way to the sea for their products. There are other roads projected, and all of them touch and tap important points. Those now in course of construction are, it appears, in vigorous hands, and will quickly be completed, while those projected will in all probability be soon put under contract. This looks well for Georgia, and it is a matter for gratulation that she has this to be recorded in her favour.

We copy the above, because we delight in witnessing the wonderful effects resulting from the combination of the plough, the loom, and the anvil, and desire to have our readers participate in the feeling. Georgia has built factories, and factories have brought with them so great an increase of demand for numerous other articles heretofore imported from the North, that manufacturing establishments of every kind are springing up like magic throughout the State. Population grows, because the people are not compelled to fly from the vicinity of their neighbours to seek the West, and with the increase of population come the desire and the power to construct roads; and thus is it always when men are enabled to work in combination with each other.

South Carolina repudiates the doctrine of protection. She will have no manufactures. She is determined to continue to exhaust her soil and her people by sending from the land all the products of the land, and the consequence is, that her people rarely meet for any purpose but that of passing resolutions, and her governor informs his constituents that if they would but make roads they could have lime in the interior of the State as cheaply as they now obtain it from Maine. Her orators declaim from year to year in relation to the wonderful natural advantages of the State, with its boundless meadow-lands, its river bottoms uncleared, its lime, and marl, and iron ore, and yet its population does not increase! The people of Georgia rarely meet for the passing of resolutions, but they are daily meeting to devise plans for promoting the combination of action which is essential to the making of roads and building of mills—for bringing the consumer to the side of the producer. They tell us little of the productiveness of their soil, but they afford to the world proof conclusive that they have productive soils, for they grow in wealth and population, and they are becoming daily more and more thoroughly satisfied that it is population that makes the food come from the rich soils, and that if they would cultivate such soils, they must bring the plough, the loom, and the anvil to work together. That State appears determined to become one of the richest of the Union. South Carolina, unless she change her policy, must inevitably become one of the poorest.

OVER-LIMING.

MAY we not have too much of a good thing in farming, as in other cases? As too much pudding will choke a dog, may not too much lime, without a due proportion of other manures, sicken the land? True it is, that the want of it, and the great cost of getting it in many localities, even where farmers have large means, may be considered among the greatest drawbacks that exist to the general restoration of the exhausted lands of the old States; but let the farmer always remember that the best hobby may be ridden too hard.

We recollect once meeting Judge Dorsey of Maryland, whom we take to be a very careful and attentive husbandman, and falling into conversation on agriculture, as neither of us needed any provocation to do, he intimated strong doubts about the value of *lime as a fertilizer!* He had, it appeared, used it freely for a number of years, and lately it had ceased to have its wonted effect on his estate on Elkridge, where lime has been, as much perhaps as anywhere in the Union, the great reliance for years past.

This conversation with an Elkridge farmer, who very well knows a hawk from a handsaw, was brought to mind long after, on reading the very admirable and well-digested Address of Professor NORTON, from which we take the following extract, to show clearly how it is that lime may ultimately contribute to the diminution of crops, as in the commencement it may have done to their increase. This it does at first, and for a series of years, where the land had needed lime, by increasing the crops, and in them, sending out of and off from the land other ingredients, of which the land becomes thus exhausted, and which, in due proportion, are as essential to the crops as the lime itself. Thus a man may increase the work done and the results by the use of an active and powerful team, and so he would continue to do, if combined with equal skill and equal implements; but if, when his plough is worn out, he does not supply its place with a new one, all the teams on the earth would never bring good crops out of it. And here we take the occasion to ask the reader, when he has finished this extract, (we wish we had room for the whole address,) what he has to say about "*practical men.*" Nothing is more common than for men who have not the spirit to buy nor the curiosity or industry to read a book about farming, to descant on the superiority of your "practical man" over the man of science! Well, look here at Professor Norton. A young man, who studies and pronounces lectures on agricultural chemistry, and who, probably, never "ran a furrow" in his life. Yet take him on lime, take him on oats, take him on any agricultural topic, a thorough knowledge of which, in its very nature and constitution, is *essential to the highest success of a practical man*, and we venture to say there are not a dozen practical men in Connecticut who can do more than hold the candle while he explains them all, from beginning to end, going to the very kernel and marrow of the subject. We have long been disgusted with the cant of ignorant men against all practical knowledge to be derived *from books*. Such doctrine, carried to its legitimate and natural results, would re-establish the reign of ignorance and barbarism. No! no! give us such men as Norton, and Teschemacher, and Ruffin, and Holloway to explain the facts that turn up in the course of working men.

Farm-yard manure, made up, as it is, chiefly from vegetable materials, contains every thing that is requisite for the support of vegetation, and it may be thought unnecessary to apply any thing else. But we will suppose a given soil entirely deficient in lime, and that we wish to grow a crop of wheat upon it. The usual quantity of farm-yard manure is added. It contains lime, of course, but in ordinary cases not enough to supply the wants of a heavy crop. It is true that the deficiency may be made up by

adding an extra quantity of manure, but not so economically as by four or five bushels of lime.

The striking efficacy of lime, as often shown on long cultivated soils, even where they have been well manured, is to be explained on the same principles as in the above instance, it supplies a special defect in the soil. By an application of the same simple reasoning in a different way, we may understand what are called the exhausting effects of lime. The farmer finds that by the addition of lime he increases, and in some cases, doubles his crop. He is of course delighted, and after a few years applies it again; the effect is perhaps again very decided. He thinks he has discovered a substitute for ordinary manure, and is much less bountiful in its application. After a time, however, lime begins to lose its power, the crops become poorer and poorer, and even farm-yard manure does not produce so good crops as formerly. He now says that lime has ruined his soil, and in some parts of England it has become a proverb, "that lime enriches the father, but impoverishes the son."

Let us not decide the question until we reason for a moment upon the above mode of procedure. The land at first was specially deficient in lime only, and its addition therefore caused the production of large crops, all of the other necessary substances being present. *The great increase of the crop would of course* afterwards require an augmented amount of these other substances also. There was at first an abundance, however, and all went on well. After a time more lime was added, but only a stinted supply of any thing else. The natural consequence was, that eventually some of the other substances became exhausted. There was now enough lime, but no potash or soda; these are as necessary as the lime, and if they are absent the crops become scanty, and farther additions of lime do no good, it not being that which the land requires. The true policy would have been not only to supply the lime, but to keep up the stock of other substances now more necessary than ever before, *because of the increased crops.* Another property of lime is the decomposition of the organic matter of the soil, thus bringing it into a condition fitted for the nourishment of the plant. It therefore also disappears with extraordinary rapidity, and unless *fresh additions are made*, this proves another injurious effect in cases where the quantity of organic matter is small.

It does not follow from what I have said that lime must always be beneficial, for it is often the case that the soil over large districts already abounds in this substance. A fresh addition on such soils does no good. This explains many discordant opinions respecting its application. The rock of one geological formation may contain lime, and that of another none at all; the soils formed from such rocks will differ in the same degree.

These facts should be remembered in the application of all special manures. Were they so remembered, many of the conflicting statements now so prevalent would be at once explained. Near the sea, for instance, little benefit is to be expected from the use of common salt, for the soil there, in all ordinary cases, is already well supplied by the spray borne inland from the sea.

NEW JERSEY ZINC.

The Sussex Zinc Company are commencing the manufacture of zinc in this city from the red oxide of that metal, obtained from their mines near Franklin Furnace. The ore is said to be inexhaustible in quantity, the vein being nearly vertical and of great thickness—in some places nearly thirty feet. Five bars of this metal just from the manufactory were exhibited to us yesterday as specimens. We understand that extensive orders have already been received for the manufacture of spoons, forks, and other household articles. This zinc, judging by what we have seen, is destined in the hands of the present manufacturers to supersede to a great extent the use of silver, particularly in such articles as we have mentioned.—*Farmer and Mechanic, New York, June 7.*

To prevent Hares and Rabbits from Barking Trees.—Mix soot and milk until the mixture acquires the consistency of thick paint, and apply it with a paint brush, choosing a dry day, if possible, for the operation: once a year is sufficient.

DAIRY HUSBANDRY IN THE STATE OF NEW YORK.

One of the most, among many, valuable papers in the Patent Office Report for 1848, (together with much matter of local and transient interest,) is the communication from Mr. Johnson, Secretary of the New York State Agricultural Society, giving a summary view of the agriculture and husbandry of that great State. Among other interesting letters and items, he communicates the following:

Mr. John Holbert, of Chemung county, whose butter had been purchased by the New York gentlemen at thirty-three cents per pound, and used with so much gusto as *Orange county butter*, has often received the highest premium at our State and County shows. The present year it received the first premium at Buffalo, and also at the American Institute, New York. I annex a statement of his dairy, and also his method of manufacturing his butter, which will, I presume, be found of interest as well as of value to the dairy interests of our country.

Statement of the farm and dairy of John Holbert, of Chemung town and county. This farm is elevated about eight hundred feet above the tide water, in 42° north latitude. Contains two hundred acres. The past year forty cows have been kept, and the land managed as follows:

24	acres of	wheat.
8	"	buckwheat.
10	"	oats.
20	"	corn and potatoes.
2	"	summer fallow.
40	"	meadow.
74	"	pasture.
22	"	wood and waste land.
200	acres.	

Soil, a gravelly loam, with a slight mixture of black sand; subsoil the same. No plants or slops for cows. All that is fed is hay, grass and corn stalks. Pastures are clover and timothy; hay the same. Meadows produce from one to two and a half tons per acre. Plaster is used on the pastures and meadows every year. Several experiments in making butter have been tried the present season. Commenced making butter about the first of April, and, up to the 4th of May, made 512 pounds. May 5th, commenced packing for fall market, and closed 15th December. June 15th, drew the milk from 37 cows. Morning's mess, 525 pounds; evening's, 632 pounds; in all, 1,157 pounds, making 3 pounds 11 ounces of butter to 100 pounds of milk. June 20th, had three more cows come in, which made dairy full. Cows commence dropping their calves in March, and do not all come in until the middle of June. Do not rear all the calves, but usually keep the finest. Swine are kept to consume the butter-milk. Cows are generally the common breed; have a few that have a slight mixture of the Durham blood. Their ages range from three to twelve. Prefer a cow not less than five years old for the dairy, and as much older as she winters well. Change pastures often, and think it advisable to change twice a week. Too much care cannot be taken to have cows well watered and salted. Keep a large watering-trough in cow-yard, where the cows are observed frequently drinking large quantities of water immediately after coming from the brook. Salt is kept lying in the yard the year round. The cellar is thoroughly cleaned every spring. Milk is kept in one cellar; the butter in another. Too much care cannot be taken as to the time of churning. Usually churn from one hour to one and a half. Put from one to two pails of cold water in each churn before commencing to churn, and

one pail more in each when nearly done, to thin the milk and make it produce all the butter it contains. When done, take the butter out, wash it through one water; then set it in the cellar and salt it; then work it from three to five times before packing; do not finish salting until the last working; then add a little salt, which makes brine that keeps the butter sweet. One ounce of salt to one pound of butter is about the quantity that suits most people, or at least the butter-buyers in the city of New York. The butter is then packed, if the weather is cool, the first day; if warm, the second day. If the milk is too warm when churned, the quantity of butter will be less, and the quality and flavour not so good as when it is cool at a proper temperature. Butter is worked by hand; used a butter-worker last fall, but recommend the hand-ladle as decidedly preferable.

Packing.—Fill the firkins to within two inches of the top; then lay a clean cloth on the top of the butter, and put salt on the cloth, and keep it covered with salt and brine all the season. Great care should be taken not to let the milk stand too long before churning, as, in that case, in hot weather, it becomes too sour, and the butter will be sour also; and in cool weather it will become bitter, all of which can be prevented in cool weather by putting about one quart of butter-milk in each pan or tub before straining the milk, and in hot weather by churning as soon as the milk becomes thick and moist on the top of the cream. Use salt of the Ashton brand.

From 5 cows in 30 successive days—commenced 28th of May—made 248 pounds of butter. On 11th of June, drew from five cows 187 pounds of milk, which made 8½ pounds of butter. Churn all the milk by horse-power, and usually churn four 1½-barrel churns at once.

On 8th of August, drew the milk from 40 cows in the morning, 508 pounds; in the evening, 519 pounds—in all, 1,027 pounds, which made 39 pounds of butter.

The morning's mess made 3 pounds 10 ounces from 100 pounds of milk.

On 11th of August, drew the milk from 20 cows, weighed and churned it separately—result as follows:

No. 1	26	pounds	milk,	1	pound	8	ounces	butter.
2	25	"			"	10	"	
3	27	"		1	"	6	"	
4	28	"		1	"	2	"	
5	30	"		1	"	2	"	
6	23	"		1	"	4	"	
7	31	"		1	"	8	"	
8	28	"		1	"	1	"	
9	27	"		1	"	1	"	
10	26	"		1	"	3	"	
11	28	"		1	"	12	"	
12	24	"		1	"	4	"	
13	29	"		1	"	14	"	
14	19	"				14	"	
15	16	"				12	"	
16	17	"				8	"	
17	21	"				14	"	
18	33	"		1	"	15	"	
19	31	"		1	"	..	"	
20	31	"		1	"	..	"	

The above table shows the difference between cows and milk.

On churning the milk separately, one of the best cows makes as much butter *as three of the poorest giving the same quantity of milk.* June is a better month for making butter than July or August. Made 107 pounds more butter from 37 cows in June, than from 40 cows in July. One hundred pounds of milk, drawn from best cows, giving richest milk, will

make one pound more butter than 100 pounds of milk from the whole herd. There is still *more difference in quality* than quantity; one cow, *well kept*, is worth two poorly kept, for dairying.

	Pounds.
Commenced making butter 1st of April, and made to 4th of May, .	512
Commenced packing, 4th of May. In May, 26 days, made . .	747
In June, 30 days, ...	1,186
In July, 31 days, ...	1,079
In August, 31 days, ...	1,016
From September to December 15—3½ months, ...	1,948

Sold butter, 30th November, for 23 cents per pound, in New York.

The whole amount of butter made and sold amounts to $1,492 24. This, over and above family use for eight persons, on an average, gives $37 30 per cow. Last year, same dairy sold in New York for 24 cents—went South, and stood climate well. JOHN HOLBERT.

December 25, 1848.

EXEMPLARY LIBERALITY.

IN 1846, ELLIOTT CRESSON, Esq., proffered to the Franklin Institute, for the endowment of a permanent fund, *one thousand dollars*—on condition that from its net income the Institute should prepare and offer a *gold medal*, to be awarded, at the discretion of the Society, to such important inventions and improvements in the useful arts, as, (to use Mr. Cresson's own words,) might, by the Institute, from time to time, be deemed best calculated to advance *home industry*, and consequently the real independence of our beloved country.

We understand one medal has been lately awarded for "American *steel*, made at Jersey City, by Messrs. Dixon & Co. Mr. Pugh Madeira, surgical instrument maker, Philadelphia, certifies that surgical instruments made from this American steel possess as fine an edge and appearance as those manufactured from the best imported cast steel."

Thus, with proper encouragement, should we proceed from one invention and improvement to another, and realize, in a few years, a degree of independence of other countries, for essential articles, which under the blighting effects of an impracticable free trade policy we should never attain.

Mr. Cresson has here again evinced a discretion worthy of his liberality.

It were to be wished that the surplus fund of the Patent Office, (if one must be accumulated from the tax on inventors, instead of their being paid for them,) could be given in premiums, not for jimcrackery, but for *important discoveries*—so pronounced to be by a board of commissioners of the highest character for science and practical knowledge. How much better than to throw that surplus into the public treasury, like a drop in the ocean.

THE PRIZE HAM AT THE LAST MARYLAND CATTLE SHOW.—Mrs. Horsey's ham was cured by the following recipe:—For twelve hams of common size, take eight pounds of brown sugar, half pound of crystallized saltpetre, and five pounds of fine Liverpool salt. Rub well with the mixture, and let them be a week in a cask with the skins down. Then make a brine strong enough to bear an egg, and add two or three quarts of ley from hickory ashes, refined by boiling and skimming—cover the hams with the brine, and keep them down with a weight, and let them remain in it three or four weeks. Then hang up in a smoke-house, and after twenty-four hours smoke with hickory wood until cured, say six weeks. This ham was wrapped thickly with timothy hay before being boiled. [And we presume so boiled in the hay.—*Ed. P. L. & A.*]

Needwood, Nov. 8, 1848.

WITHDRAWAL OF SUBSCRIPTIONS.

ORIGIN OF "THE PLOUGH, THE LOOM, AND THE ANVIL."

From a file, or rather a pile, of letters, some of which have been answered, and some not, it strikes us to bring here together a few extracts.

We confess to no such delicacy, affected or real, as should prevent us from thus preserving, in a more durable form, for the gratification of those who are to come after us, (and for whom we have nothing else,) the testimony of such men to the value of our humble but constant labours in the great cause of agriculture; for, in perfect, unqualified sincerity, we can aver that it is on account of the farmer and the planter that we desire to see pursued such a course of legislation as will tend to raise up, close around them, prosperous customers, instead of scattering our population sparsely over millions of miles, in search of a mere subsistence as agriculturists. What nation purely and exclusively agricultural ever yet rose to a high degree of wealth, power, and civilization? It will be seen that we give the condemnation as well as the approval of our course. At one thing we do admit our mortification, to wit: that withdrawals should have come *almost exclusively* from *Virginia* and *South Carolina;* for, if required to specify *the* States in the Union wherein we have always had the *greatest number* of friends, most kind and most valued, there are none that could take precedence of these. Scarcely have we ever contemplated any project for the melioration of any agricultural interest, that our thoughts have not turned to those gallant and hospitable commonwealths, as fitted, by the character of their sons, to kindle the liveliest sympathy and regard in the bosom of those who have sagacity to distinguish and a heart to yearn towards all that is generous and gallant in our nature. But neither friendship nor admiration can blind us to the belief that no two States in the Union have had their natural advantages (so abundant, even to profusion) so much paralyzed, and their progress in population, wealth, and power so fatally arrested, as have these two noble sisters of the Republic, by a false policy of government, engendered in an erroneous public sentiment as to the means by which the resources of a State are to be most effectually developed and improved. We are free to confess that it is of late years that this impression has grown into conviction, the result, as we honestly believe, of anxious inquiry and a better understanding of the real sources from which must spring every country's growth and prosperity. Yet far be from us the spirit to dictate or dogmatize; and so far from taking umbrage at any difference of opinion, how, but by collision of thought, especially in speculative matters, can men arrive at truth, which is the object of every honest mind? Heaven keep us for ever from that

> "Pride of ignorance,
> That with small knowledge thinks itself full wise!"

With the conscientious desire to lead the cultivators of the soil to the perception of those principles of political economy which we believe to be at the foundation of prosperous agriculture, we have established a journal, through which to explain them, asking only that our arguments may be taken for what they are worth; but let them be first examined—"strike, but hear." It is not enough that a man shall tell me, such and such have been his opinions—such the doctrines he has "been preaching for thirty years;" that he wants no restriction on his choice of markets; that he desires to sell where he can get the most, and buy where he can buy the cheapest. Such old and plausible sayings, unaccompanied by reasons, are mere dogmas at last—generalities, such as have been honestly entertained

in Carolina and Virginia from 1798 to 1848; but where has the practice upon them brought and lodged these noble States at the end of half a century? To the last stage of agricultural exhaustion and paralysis, sinking almost out of view in the wake of others, starting fairly with them in the race for population and power. True, there are those of the ancient school who profess to find in a population so sparse that no man can hear his neighbour's dog bark, the best evidence and guaranty of social happiness and civilization. To say nothing then of a stagnant population, (which too much resembles a stagnant pool,) and with it the loss of political power, let us suppose the population to be extinct, and the traveller to come along in search of the monuments of a once active, industrious, civilized, and enterprising people; how different, even in their ruins, would be the aspect of depopulated Massachusetts and Virginia! The former, leaving behind them well-built towns all over the State, substantial farm-houses every half mile, stone fences made to endure for ever, roads on which two oxen haul as much as six in the South, and webbed all over besides with railroads, built at the cost of many millions; thriving orchards yet bearing their golden fruit in vast abundance; cattle and sheep covering every hill and browsing in every meadow; banks in every village, and factories on every stream, with churches and schoolhouses everywhere in view. Alas! how different the face of every State where the cry has ever been, *Laissez nous faire*—give us "*free trade!*" There may be seen along the tide-water courses magnificent ante-revolutionary mansions converted into stables and granaries; out-houses in ruins; churches and fences in a state of decay, with vestiges of old orchards and gardens scarcely visible; roads almost impassable; and, from the interior, transportation so distant and expensive as only to admit of the cultivation of things that will bear *such* transportation, making no return to the land that produced them;—and all this to be seen and said of a people absolutely eminent for their general intelligence, their hospitality, and their patriotism. Nevertheless, for more than half a century, the cry has been and still is the same—"Give us free trade." Let us compete over the world for the markets of the world—let us admit British manufactures, the work of her starving operatives, if she will let us compete in her markets with our grain against the serfs of Germany, who are glad to get $50 a year and find themselves, living on *pumpernickle*, or hard, black rye bread, only fit for hounds hunted three times a week. So we too are for free trade; but let us first break down the colonial vassalage that binds the world in subserviency to English policy, so much in opposition to the convictions and interests of the world and the world's readiness to resist it, that we see her compelled to keep up a thousand ships of war, at a cost (quite as much as *ought* to support our government) of $15,000,000, which, by the by, is about the amount she levies, in a spirit of *free trade*, on our tobacco!

Suppose her manufactures let in to even double the amount they are now—doubtless, for the time, until our domestic industry should be entirely destroyed, we might *buy cheaper*, but how long would that last? Whereas, we have the authority of the late Secretary of the Treasury for saying that continued protection to our manufacturers would prompt them to advocate free trade. Let us then determine to break for ever these colonial chains that bind us to England, notwithstanding our nominal independence, and in less than twenty years we could supply the world with manufactures, and those who would make them would be eating the produce of the American farmer and planter on the spot, and he would be returning to his land the refuse of its products, and Virginia would get rich. Her sons would stay at home, her daughters would get married, population would thicken, the arts, useful and industrious, would prosper; and in place of despair,

and desertion, and office-hunting, would come population, and power, and wealth, education, confidence, and self-respect, and advancement in all that distinguishes the highest from the lowest condition of organized society.

Let us make a comparison in some points between two States of the same age—one for the separation of the plough and the harrow from the loom and the anvil—the other for drawing them all as near together as possible. One for free trade—the other for the encouragement of the home market. One denouncing banks and factories—the other building them.

	Square Miles.	Acres.	Population in 1820.	Population in 1840.	Banks in 1849.	Annual products of Industry.
Virginia,	61,302	39,233,280	1,065,379	1,239,797	9	76,769,053
Massachusetts,	7,250	4,640,000	523,287	737,699	109	75,470,297

Thus, while Virginia, beginning on a population capital of more than a million, gains in 20 years less than 175,000, Massachusetts, with half of her capital in population, gains in the same time more than 200,000! And then, when the Virginian gets his corn and wheat to tide-water, in competition with the immigrants from the West, who have been driven there to be agriculturists, because the free trade policy won't let them stay on the sea-board to be manufacturers and consumers,—when the Virginian does get his little surplus to tide-water, where is he to find his best customers, one year with another? In old England or New England?

Instead of dreaming for ever about free trade and the resolutions of '98, let him dream of General Jackson's letter to Doctor Coleman, and let him read and judge for himself. Let party hacks ride other hobbies, but let this great national question be withdrawn from their hands; there is enough for them to squabble and cajole the people about besides. The real difficulty has been in shaking off the colonial allegiance to England which was the natural growth of our extraction from her, although we may not be sensible of it. What daughter ceases, on getting married, to obey instinctively the suggestions of her mother, even though she may think them wrong; and they must be palpably so before the daughter can perceive it. Even the last war into which she kicked us has not made us *really* independent of English influence. As General Jackson says, we are still too subservient to "the policy of the English merchants." But let the Virginia farmer read this:

In 1844—we take that year for two reasons: 1. There was no famine anywhere, and the operations represent the current of trade under ordinary circumstances, and, 2. We happen to have the documents on hand—our exports from all the States to all Europe, of flour, corn, and pork were as follows, viz.:

161,103 barrels flour	$810,556
88,903 bushels corn	44,428
11,788 barrels pork	117,880
	972,864

The imports from other parts of the United States into New England were, for the same time—estimated by adding 50 per cent. to the imports of Boston, for the quantities received at all the other New England ports, and which we believe to be under the mark, and deducting the foreign exports from Boston:—

922,017 barrels flour	$4,610,085
1,960,663 bushels corn	1,176,397
60,000 barrels pork, exclusive of exports	600,000
	6,386,482

Thus it appears that under ordinary circumstances the consumption of New England for the breadstuffs and the pork of the agricultural States is more than *six times* as large as that of *all Europe*, and the same proportion will hold good when applied to beef, lard,

hides, wax, hemp, beans, castor oil, lead, feathers, oats, rye, barley, butter, and all other productions of the soil, except tobacco and cotton.

Well, it was to make known, for what they are worth, our reflections on the state of things as it exists, and to suggest such a policy as will, in our humble judgment, best comport with the great agricultural interest of the Union, together with some hope of being able to obtain an honest livelihood, for which, otherwise, we had no means—not a picayune—that we have undertaken to put forth this journal. So far we have had every reason, with some few exceptions, as in the case of the first two letters here presented, to feel well content with the manner in which the Plough, the Loom, and the Anvil has been received. The rejection of the work by those who had patronised other journals under our control has come, as we have said, chiefly from *Virginia and South Carolina.* Far from taking any exception to the course of those who renounce it, for which we should have no warrant, we fully recognise their right, and find even some mitigation of regret at parting with them in the persuasion that the sentiment is in some measure reciprocated by our old friends. Gentlemen always know how to differ without any forfeiture of personal regard and confidence; while fools only know not how to make allowance for inevitable disagreements of opinion even on questions not susceptible of mathematical demonstration.

THE EXTRACTS.

Darlington C. H., S. C.

I enclose $3, which you will please place to my credit, for "The Plough, the Loom, and the Anvil," and you will strike my name from the list of subscribers as soon as the time expires for which the money will pay. A protective tariff has ever been in a high degree odious to me, and it does not become less so, as time but serves to illustrate the blessings and the wisdom of free trade principles. My abhorrence of the injustice of the tariff of '28, made me a volunteer in the military service of this State during the memorable Nullification contest of 1832, when I, in common with an overwhelming majority of the people of this vilified State, was prepared to do as the venerated fathers of '76 did in relation to the tea-tax of tyrannic Britain. Nothing but similar provocation is needed to place me on that same Nullification Rock again. Consolidationists, and grasping monopolists combined, with all their fury, have never been able to make such a "hob-goblin" out of it as to frighten true free-trade and State-rights men from their propriety. Entertaining these views, I am unwilling to contribute my mite to the dissemination of contrary views. They may answer for a Northern—I am sure they are not congenial to a Southern latitude.

With great respect for your general service in the cause of agricultural improvement,

I remain your ob't serv't, T. P. L.

The writer will excuse us for taking the liberty to give his initials. The name of the writer, (not to be exceeded in his title to respect,) would have been given, with others, in full, if we had been certain it would meet his approbation.

I was much pleased with your paper, as far as agriculture was concerned, but as soon as you turned politician, and the advocate of the Northern manufactories, I resolved to be a subscriber no longer. Yours truly, I. M. B.

There are five Northern States in which we have not fifty subscribers. But see what says E. PHINNEY, of Mass.—no manufacturer, but a model farmer and a highly educated gentleman:

Lexington, Mass.

As for my opinion of your new work, "The Plough, the Loom, and the Anvil." In the first place, I have been actually astonished that one head and hand could do so much. I want more time than is allowed me in the day and night hurry of court business to express my views of a work so broad in its range, and so eminently calculated to be of great utility to the interests of the *whole* country. I most sincerely believe it will do more to promote the cause of agriculture, to give a healthy tone to the great body politic, and to reconcile conflicting parties, than all the noisy declamations of hot-bed politicians. In short,

it is *just what the country wants*, and must convince every owner of land that, if he would thrive by the Plough, it must be by bringing it in proximity with the loom and anvil.

I had not seen a single number of the work till I received the seven numbers forwarded by you, and regret that I have so long been deprived of the pleasure of perusing its interesting pages.

Every New England man, woman and child, owes you a debt of gratitude that should at all times secure to you open doors and open hearts.

With kindest wishes, that you may for a long time to come be enabled to pursue your useful labours, I am, very sincerely, your friend, E. PHINNEY.

Senate, U. S., Washington.

I do not know what success Mr. Anderson's invention [for breaking and preparing hemp] has met with. I will make some inquiry, and should I obtain any information of value you shall have it.

I was much gratified at the perusal of your speech, (at Middletown, Connecticut,) which exposed the fallacies of our free trade politicians. The true cause of the depression of agriculture in our country is to be found in the fact that we purchase and pay for immense quantities of foreign bread, meat and vegetables, when we pay for the articles manufactured abroad which we consume. I trust your labours may open the minds of our farmers to this truth. Let them see that when they wear a coat made of British broadcloth, they must pay for the food the manufacturer consumed while engaged in making the cloth. With great respect, your ob't serv't, J. R. UNDERWOOD.

Lebanon, Pa.

Your new journal I believe to be destined to do much good under your lucid and useful pen, to the agricultural and other American interests. The following passages from Gen. Jackson's letter to Dr. Coleman, in 1824, are sound truths, which are never directly denied, although there has been great pains taken, and endeavours used, to establish an opposite system of governmental policy:

"Heaven smiled upon and gave us liberty and independence. That same Providence has blessed us with the means of national defence. * * * He has filled our mountains and our plains with minerals—with lead, iron and copper—and given climate and soil for the growth of hemp and wool. These being the grand materials of our national defence, they ought to have extended to them *adequate and fair protection*, that our own *manufactories and labourers may be placed on a fair competition with those of Europe*, * * * In short, sir, we have been too long subject to the British merchants. It is time that we should become a little more Americanized," &c. &c.

We advocate protection to American interests at this time, to maintain the labour rights of our free citizens, in a just scale of home competition for the American market.

A large portion of our freemen are labourers, and if they consult their own interests they will not vote themselves down to the same level with their oppressed brethren in England and Europe. They see the propriety of a discriminating tariff upon foreign productions, assessed for the purpose of "placing our own manufactories and labourers in a *fair* competition with those of Europe," and thus securing for themselves fair wages, and to the farmers fair prices for their products. Those who, like your correspondent, "R. S. W.," believe that "the same policy virtually actuates both the cabinets of London and Washington," ought to bear in mind that those who advocate "adequate protection for our own manufactories and labourers" have no objection to "free trade," provided always that the trade be *mutually beneficial* as well as free. But, as American manufactories cannot so compete without a great reduction of wages, or a discriminating tariff to protect them in keeping up the present rate of wages, the latter is preferred.

The cotton planter, the merchant, mechanic and manufacturer, know from experience that home competition in the production and sale of the various commodities, always secures fair prices to the consumers of those articles. Although not as *directly*, yet all are greatly benefitted in an American system of home production and home markets, which secure regularity of business and a sound currency.

Very respectfully, &c. S. GUILFORD.

Richmond, Va.

I feel a most profound interest in all that promotes the prosperity of agriculture, and I most heartily wish for the success of your periodical. So far as one whose life is so retired as mine can promote its circulation, I shall always endeavour to assist it.

Permit me to say, however, that it was a cause of deep regret to me that you found it

necessary to modify your first plan, and to substitute a smaller and more varied publication for "The Farmers' Library," the only comprehensive and philosophical agricultural journal we had in the country during its brief life. I suppose, however, the alteration was no agreeable one to yourself, but a sacrifice to the want of agricultural spirit among your subscribers, and the barbarism of public taste in this country.

Very respectfully yours, JAMES M. MORSON.

Maplebrow, Pa.

Accompanying I send twenty dollars, on account of ten subscribers to your invaluable periodical. My engagements have prevented me from doing so much for the good cause hitherto as I could have wished, but I trust the leisure of the winter will afford me abundant opportunity of proving the interest I feel in your undertaking.

I shall take an early opportunity of calling public attention to "The Plough, the Loom, and the Anvil," in the three papers of our town, and cannot but hope that it will obtain a large circulation in a county *so essentially tariff* as ours.

With my best wishes for the success of your patriotic labours, I am, dear sir,

Very truly yours, ROBT. R. REED.

P. S. Monday morning—On coming to town this morning, I added four more names to the list, which you will find below. All have paid, except Mr. ——, who is absent from home just now. R. R. R.

New Berne, N. C.

Dear Sir—I heartily approve of the leading theory or principle of your work, and it will always afford me great pleasure to speak in its commendation, and in any way to aid in its circulation.

There is no person to whom agriculture, and its kindred sciences and arts, owes so much in this country as to yourself, and I hope, however long deferred, the debt will be one day paid with interest.

You address me as Gov. Manly. My brother, Charles Manly, is the governor, and resides in Raleigh. I am one of the Judges of the Inferior Courts of the State, and reside at this place, (New Berne.) With very great respect, M. E. MANLY.

To J. S. Skinner, Esq.

CHOWDER.

WE should like to have *Mr. Webster's* judgment on the following, from "Stoddart's Angler's Companion." In cooking chowder, 'tis thought "Black Dan" can beat any body "into fits."

A simple way of cooking a whitling, or good salmon trout, by the river side:

Kindle a fire of dry wood. Take your fish when just out of the water. Fill his mouth with salt—roll him up in two or three folds of an old newspaper, twisting the ends together. Immerse all in the water, until the paper has become thoroughly saturated. Then lay the fish among the embers of your fire. When the paper presents a well charred appearance, the trout is properly done, and will prove a savoury and acceptable morsel. The fish, I may observe, must *not* be cut open and cleaned. During the firing process, the intestines and other impurities will draw together, and not in the slightest degree injure the flavour of the trout.

A Young Farmer requires a Remedy for Lame Sheep.—If lameness has been for years in the flock, proper attention has not been paid thereto, and it will require considerable time and perseverance to eradicate it. The feet must be properly pared out quite to the bottom of the disease, without making the part bleed, if possible; then apply a solution formed by mixing half an ounce of verdigris, half an ounce of blue vitriol, half an ounce of flour of sulphur, and half an ounce of common salt, with as much spirits of salts as can be bought for six cents. If the weather is wet, the sheep should be housed for a few hours after dressing, nor will one dressing effect a cure where the disease is of long standing. The sheep must be constantly examined, and the paring continued, and when the disease appears, wash it with the solution. This is a certain cure, if properly attended to.

ON THE VALUE OF WHEAT STRAW AND CORN FODDER AS PROVENDER.

How vague and undetermined is the knowledge of farmers on points of the greatest practical importance, in regard to which their business requires them every day to have exact information! To overcome this looseness of ideas and of practice in their profession, what is needed is, *early and definite education*, in stricter reference to their own pursuits; and this they will obtain, after years of *united* exertion, if they can be brought *to unite and to agitate*. We have ourselves been thirty years endeavouring to persuade them to do so; and it is only now that the sentiment in favour of public appropriations for agricultural education seems to be taking root in good earnest.

Whence does the government derive its means of public appropriations? Is it not from taxes accruing from the consumption of imports *by farmers and planters*, in the proportion at least that they excel *all* other classes? Why, then, should not public provision be made to instruct their sons in the value of the various kinds of food, and the mechanical structure of farm wagons, as well as the sons of a favoured few in the laws of projectiles, the composition of gunpowder, and the construction of gun-carriages? But we must take some other place for such reflections.

There are few things about which there is less exact knowledge than about the value of wheat straw, and here is a plain, sensible, valuable paper from a working man, who speaks from large personal experience for a series of years. We find it in the *Patent Office Report for* 1848, communicated by Major Jones, of Delaware. This is the sort of paper which we like to preserve, because it is for all time and for all parts of the country.

When a very young boy, with a natural propensity to be hunting, like a terrier, about *stables*, under a double impulse of *love of horses*, and sometimes perchance to find and plunder a stray hen's nest—we remember, even then, the careful grooming and fine coats and condition of horses in the stable of Capt. Benjamin Harrison, of Holly Hill, West River; and, "little shaver" as we were then, we well remember that *wheat straw* was a favourite provender with him, especially for saddle horses, for the reason, among others, that it had a tendency to keep the skin and coat in fine order.

He, too, was one of those plain, intelligent, high-minded, honourable men, and close observers and neat managers of whatever he took in hand, that made men look up to and quote and respect him as an *example for his neighbourhood*. Honoured far above intriguing politicians, however successful, be the memory and example of all such useful men—such men as Doctor Fenwick, "of that ilk," and Gale, and the late Thomas Sallman, &c.

Port Deposite, *February* 3, 1849.

Dear Sir:—Yours of the 1st instant came duly to hand, inquiring of me the value of straw and corn-fodder as provender. Good clean wheat, rye, or oat straw is always valued at half the price of hay, provided the distance to haul it to market does not exceed three miles. When hay is worth $15 per ton, if the distance is greater, the charge is more. Corn-fodder, when well cured, will always command as much as good hay. The fodder is principally used for milch cows. When I can buy good clean wheat or rye straw at half the price of good hay, I prefer it to hay for horse feed; and at all times, when I can get straw, I feed it to my horses in preference to hay, for the reason that hay has a tendency to make a horse short-winded. And I have known instances where horses have been kept all winter on hay, without grain, and were not worked any to require grain, and when spring came, they had the heaves. And I have also known horses have the heaves that were cured by feeding them on clean straw, with a little grain; and I am fully convinced that a horse that is constantly worked as a stage horse,

carriage horse, or saddle horse, will stand more fatigue, and his wind will be better, by being kept on oats, or corn, and the clean straw, than he would if he had the hay.

But when you feed corn, it is important to give the horse plenty of salt. When I feed corn altogether, I make a tub full of salt and water, (about one gallon of salt to twenty gallons of water.) I then put the corn (in the ear) in this pickle, in the evening what I intend to feed in the morning, and put in in the morning for noon, and put in at noon for feed at night, &c., and give plenty of straw with it; and horses will stand the heat of summer as well as they would on oats and straw; and I am confident they will stand it better than they would if hay were substituted.

I do not wish to be understood to say that a horse would do better on straw alone than he would on hay; but if you will take straw, and take the balance of the money in favour of the straw, and buy oats and corn, and feed it with the straw, which will make the same cost, then your horse is better than he would be on hay alone. But when you take a horse that is always grained fit for service, you save by the straw.

In 1847, I paid for wheat straw $8 per ton, and hay sold in that year at $16 to $18 per ton. In 1848 and at present I am paying $6 per ton for straw, and hay can be bought for $10 per ton.

Inquire the advantage of the use of clean straw of some of the old northern stage contractors, and I think they will agree with me.

I remain, with rsepect, your most obedient servant,

Mr. John Jones. J. J. Heckart

INDIANA AND HER RESOURCES.

By almost every mail we receive new evidences of the growing determination throughout the country to make an effort to bring the loom and the anvil to take their places by the side of the plough and the harrow. The planters of the South see in the gradual increase in the quantity of the great staple and equally gradual reduction of price in the foreign markets, on which they have been forced to depend, nothing but ruin. The farmers see that their surplus of food is increasing because of the vast numbers who are annually forced to seek the West, there to raise food, when they would have preferred to remain at home consumers of food. Everywhere the agricultural interest is awaking to the fact that they waste annually more labour and manure than would pay for all the cloth and iron they consume, and that if they would increase in wealth and prosperity, they must follow the advice of the illustrious Jefferson, and exert themselves to bring the manufacturer to their sides. Everywhere they are becoming more and more sensible that true political economy is to be found in the advice of the patriot Jackson, who desired that we should take more care of our own labourers and feed fewer of the paupers of Europe. In this course of action Georgia stands distinguished among the Southern States, and she is consequently advancing in wealth and population at a rate far exceeding any other of those south of Mason and Dixon's line. At the West, Ohio has made great advances, and Indiana is now preparing to follow. The town of Cannellton, in that State, although now in its infancy, seems destined to become one of the great centres of manufacturing industry for the valley of the Mississippi, and when we look at the vast advantages it possesses in its rich abundance of cheap fuel, and its proximity to the great highway of the West, we are disposed to believe that the time may come when it will dispute with the great towns and cities now existing for pre-eminence.

We noticed, a few weeks since, the first number of "The Economist," a weekly journal printed at that place, whose distinct object was that of calling attention to the advantages of the place, and the immense resources of the State at large, with particular reference to the facilities afforded for combining the cotton of the South and the cheap food of the West, and supplying cloth at a cost so moderate as could not fail greatly to increase consumption. In one of the recent numbers now before us, we find an address by Hamilton Smith, Esq., of Louisville, one of the founders of the future city, which abounds in facts of the most important kind on all these points, and deductions, the truth of which appears to us so obvious, that we would gladly lay the whole paper before our readers, did our space permit. We must, however, content ourselves with the following extracts, to which we invite careful attention, as they will well repay the trouble of perusal:—

As to the actual capacity of the State to sustain such numbers there can be no question. It has 20,000,000 of acres susceptible of high cultivation,

and under the present best modes of husbandry, these acres can be made to yield not only enough substantial food for 100,000,000 of people, but flowers to decorate the dressing-table of every female, and fruits to furnish a desert to every family for every day throughout the year.*

Here but one working hour out of five is required for the production of food. We have four-fifths of our population to be employed in other pursuits.

Now how shall these spare hours and this surplus labour be employed with most profit to individuals and with the greatest advantage to the whole?

Indiana is now emphatically agricultural. Up to 1843 its supply of agricultural staples was, on the whole, within her home demand. Since that period it has had a large and a largely increasing surplus, and its producers now look anxiously over the world for consumers.

Its neighbouring States are in the same condition; all of our staples are superabundant. Dearths and floods at home, and wars and famine abroad, afford us but insufficient relief—he is most fortunate who can first reach a deficient market. As we cannot hasten the rise of our streams, through which our produce finds a natural outlet, we are all entering into competition with each other in making canals and railroads towards the great markets of the world. When these are completed we shall find ourselves precisely as we were; away from home, on expense, and bidding against each other for the dollars of foreign hucksters. We shall then, as now, be fleeced on the way, plundered at the market, and, if we have any thing left, run the risk of being robbed on our return. The longer the road, the more numerous the dangers; the further from home, the fewer the chances of detecting imposition, and of bringing those to justice by whom we have been injured.

Even with railroads and canals, with every possible facility of transporting our provisions and breadstuffs to Eastern Europe, with far less profits on our capital, and with far lower wages for our labour, can we compete in France and England with the fifteen millions of serfs between the mouths of the Vistula and the Dnieper, who grow similar products for exportation? The noble land-holders of Poland, Podolia and Volhynia, do not allow their slaves to eat what can be sold. These districts, almost as fertile as our own, are now producing as much grain as will supply the deficient markets of Europe, and yet the traveller through them can hardly procure a wheaten loaf. Bring what it will, this grain must be exported and sold. The crop is like that of cotton—useless at home. Until, then, we can send our wheat and flour to Liverpool, at a less cost than the transportation of the same article to that port from Dantzic and Odessa, and then, until we reduce its price at home to zero, it is useless for us to enter the field of competition with Russian nobles and Polish slaves.

But we have one certain and speedy mode of relief. We have a labour-saving process by which we can avoid the waste of time and money now employed in carrying over the world the bulky and perishable articles we produce and the heavy fabrics we consume. We need not continue to pay strangers for watching our corn-cribs and meat-houses in foreign countries, for we can bring the mouths to our food.

The makers of anvils at Birmingham, of trace-chains at Sheffield, of plates in Staffordshire, of cotton cloth at Manchester, would come here and eat twice as much food as they do now, if they only knew that they could

* By Mr. Wakefield's estimate, an acre is capable of supporting more than five persons with food.

make anvils, chains, plates, and cloths as cheaply and well here as there. It is cheaper to pay the freight on advertisements than on axes and scythes. Pay some trifling bills to the printer, and these foreign consumers will soon hasten to our well-filled granaries. As fast as they come, they will do our shop work, and help pay our taxes. If they do not come fast enough, we must encourage our carriers to learn the use of the awl and the hammer. If the men who are now, directly and indirectly, engaged in the export of our bulky products, such as corn, and in the import of such heavy articles as trace-chains, were employed here in the fabrication of what should be made at home, we should save more every year than the amount we yearly receive for our entire exports. Should we, in process of time, make more plates and ploughs than we need at home, we can send the excess to Odessa if there is no market nearer. The products of skill will bear transportation, and pay high wages.

The fellahs of Egypt can sell wheat cheaper than we can, for they require but little money to pay their merchants and tailors. We shall always be underbid by the Ryot of India, for his native prince and his British governor will not allow him to put up a workshop. The serfs of Kiev drag their corn down to the Black Sea; the Jew speculator buys, and hires the lazy Greek to ship it to the London docks. While there, the Wabash planter need not expect his corn will be disposed of at a profit in the same market, for the serf has no holidays, the Jew is content with less profit on his capital than the factorage of the New Orleans commission house, and the appetites and desires of the Greek sailor are easily satisfied.

But, combine our food with cotton, wood, hemp, and iron, and you can send it to Moscow; to the sources of the Nile; and to the foot of the Himalyah Mountains; and while we grow rich, we can pay high wages to every intermediate agent.

Now, suppose the average increase of population in Indiana, for the next few years, should be 120,000 per annum, and that, of these, only 40,000 are productive, and are directed to new employments in which the average remuneration for labour would be seventy-five cents per day, the product is $9,000,000, or two-thirds of the entire export of the State. Suppose, further, that manufacturing employments were provided, suitable for female labour, giving but twenty-five cents a day for 200 days in the year; the operatives being chiefly from the ages of 15 to 19; and the remaining 100 working days in the year being spent by these operatives at common schools. Fifty thousand females, whose labours are now almost entirely unproductive to themselves and the State, would gladly avail themselves of such opportunities of providing themselves with a dowry. The product of their labour of the year, would be two and a half millions of dollars.

It is beyond our power to calculate the effect that such an amount of earnings, such a saving of money and of such a home market would have on the values of land and labour within the State.

The premises that over-production lessens the value of the product, being granted, it cannot be said that the withholding the product of the surplus labour will lessen the value and quantity of the commodities obtained from abroad, or our ability to pay for what we should import, or the ability of foreigners to pay for our produce, which they require. Indeed, both parties would divide the savings made in the avoidance of the unprofitable carriage. Let the carriers, if too abundant, engage themselves in the production, instead of the transmission of wealth.

To illustrate my idea, let me suppose that we make our axes and import our watches. The whole manipulation about the axe may require two days of labour. That about the watch may require the labour of two

hundred days. The one worth one dollar and the other one hundred dollars. The carriage of the least valuable is one-half of its cost; that of the most valuable, including insurance, is not one-hundredth part of its cost. Now the savings on our axes and such heavy commodities, will enable us to buy and import the watch and such light and less bulky commodities. In buying the axe we support the foreign labour of two days. In buying the watch, we support, we buy, we give the equivalent of two hundred days. Thus, in precisely the same ratio that we save carriage and make our coarse fabrics at home, we have the means, and we furnish foreigners with whom we trade with the means, to render mutual exchange profitable; and in this way only can we keep up the prices of our labour, and take every possible advantage of the cheap labour of other countries; and thus arises the axiom, that a country that does not procure at home the necessaries of life, has but a very limited ability of procuring the conveniences and luxuries of foreign fabrication.

The leading principle of political and productive economy in civilized countries is independence and the substitution of domestic for foreign exchanges. Progress is most rapid in that country which possesses and uses the elements for producing exchangeable commodities at home.

The most important and available coal formations are those of the United States, of north-east British America, of Great Britain, Belgium, and France.

Of the areas of coal, now known, those in the United States comprise one-seventeenth of the whole, or over 133,000 square miles. British America has 18,000 square miles, Great Britain about 12,000, Belgium 518, France 719. Of the 133,000 square miles of coal in the United States, about one-half is the field of the central West, a part of which underlies about one-fifth of Indiana. This State, then, has 13 times as much as Belgium, $4\frac{1}{2}$ times as much as France, and two-thirds as much as Great Britain. The map, however, gives but a very imperfect idea of the respective values of these coal fields. In heavy and bulky articles *position* is every thing. The first boat made by Robinson Crusoe, after his shipwreck, was admirably adapted to his purpose, could it have been moved to its point of use. There is coal on the borders of the Arctic ocean, and there will be until the last conflagration.

The coal of Europe is on the whole inferior to our own in quality, and its position averages 500 feet "under the grass." The amount of labour and capital required to dig and raise this coal is greater than that which would be required to dig that of Vigo county and transport it to Indianapolis. But coal derives its greatest value from its juxtaposition to other minerals and materials with which it is to be combined, such as iron, copper, lead, timber, and the fibres of which cloth is made. The nearer these materials are to each other, the more valuable each becomes, if they are there combined, and they impart a corresponding value to the nearest food and labour.

If we institute a comparison between England and Belgium, and Indiana, in reference to the positions of their respective coal fields and to the source of supply of materials to be combined with the coal, the result may be full of encouragement to us.

Great Britain now produces yearly, 31,500,000 tons of coal, worth, at the points of production, about $46,000,000, and at the points of consumption, chiefly within the kingdom, about $100,000,000. The value of the iron manufactured by a part of this coal, is estimated at $80,000,000 per annum, the value of her exports, produced mainly through the agency of her coal and iron, now reaches the enormous sum of $250,000,000 per annum.

Let us now turn to the twenty-two counties of Indiana, which give an area of 7,700 square miles of coal—of that power which has proved so potent

in England and Belgium. It is safe to say that this area will average 50,000,000 of bushels to the square mile. Here we have the enormous quantity of 385,000,000,000 bushels, or an amount equal to eleven hundred times the yearly production of Great Britain. It will be remarked that *this power is just where it is wanted*, at and near the confluence of important streams. Nature has been very kind, and, in the course of years, has worn down convenient roads to and through these coal strata. The "adit levels" are the Ohio, the Wabash and White Rivers, and the natural is far more efficient than the artificial drainage. These streams, thus cutting the coal, extend through and to almost every county of the State, and afford cheap facilities of transporting bulky products to points where they can be combined with the power into forms of less bulk and weight and of greater value, and thus fitted to bear transportation to the best market.

It will be observed that, on the edges of this coal-field there is iron ore of greater yield and purity than that of England or Belgium; potters' clay equal to that of Staffordshire; lead, silicious earth, and alkalies to compare with any in Bohemia; here, also, is the best of marl, the best stone for building and manufacturing purposes; here, besides, is the soft freestone water, and, below the surface is, doubtless, brine of sufficient strength to justify boring through the superincumbent sandstone for the construction of salt-works.

There are very many other articles of which wood is the chief material, and, in the aggregate, costing a large amount of money, which should be made at home, and are now imported from most unnatural sources. For instance, pails and tubs; almost every steamboat which touches at the southern parts of Indiana brings nests of these articles made in the interior of New England.

Indiana now sends abroad her bulky and perishable corn and meat, which can be produced equally cheap by the ignorant Russian serf, to the extent of over one million of dollars a year in exchange for coarse fabrics of iron; such as axes, scythes, spades, and hoes, which are made of ore, and by coal far inferior to her own; and the loss on the carriage both ways is a self-imposed tax on her labour and capital. She not only sends the tree to New England, but she sends a thousand miles for the axe to cut down the tree, and across the ocean for the chain to drag the tree to the river. She is a producer and consumer, and as such pays the freights and loses the profits.

Of potters' clay she has enough of all the ordinary qualities to supply the world, and yet she sends to Staffordshire for her common plates, pays a duty of 33 per cent., a freight of over 50 per cent., and an extra profit corresponding with the distance of over 20 per cent. on an article which, considering the price of food and the difference in taxes, can be made cheaper on the White River than in Staffordshire.

There is now a new-born town on the Upper Ohio, called Liverpool, where coarse potters' ware is now made, and sold at half the cost of the imported article; and this is now forcing its way into common use, despite the opposition of dealers in such goods, who, like other merchants, make the highest profits on the most costly and distant-made fabrics. The farther the source of supply, the less chance has the consumer of detecting imposition.

The price of wool here, in its various grades of preparation, will average, perhaps, not over 15 cents a pound, and when it reaches the Eastern mill will average 25 cents; it is spun and woven into carpets, for instance, and becomes worth 80 cents; on its return to us it has advanced to $1. Here distance has added 10 cents to the value of the material, which has been combined with 75 cents of foreign labour.

For the yard of carpet we pay first the one and a half pounds of wool, at

22½ cents; to make up the 77½ cents, we send to the carder, spinner, and weaver of the carpet factory, a bushel and a half of wheat, or five bushels of corn, they paying the carriage.

Now, on good land, an industrious man will produce an average of two and two-thirds bushels of corn a day, and wheat in the proportion of one and a half to five. For this yard of carpet, then, we exchange nearly two days labour and one and a half pounds of wool. The actual capital employed to produce the former is actually less than that required to produce the latter. The carpet-weaver has spent no more time at the power-loom in learning the trade than our farmers' daughters have at the house-loom; her labour is not as severe, and the quantity of labour employed by the girl in the fabrication of the yard of cloth is not one-half of that employed by the man in the production of the five bushels of corn. Our wool, in the Eastern market, is in competition with the wool of South America, and our wool growers are competing with the wool grower of South America, who pays nothing for land or pasturage, and has to support neither preacher nor teacher. He can produce as much wool without as we can with the schoolmaster; but he has neither the power nor the skill to make cloth. We can combine a single pound of wool with the power, skill, food, wood, and iron, and send the yard of cloth to Brazil, and bring back in exchange for it 15 pounds of wool, and enough coffee to pay all the expenses.

To extend the consumption of cotton cloth, we must diminish its cost. This can be done by lessening the amount and cost of transportation. Then its joint producers can grow rich. The cotton crop is, say 2,200,000 bales —over 1,000,000 of these bales are required for coarse fabrics. 1,000,000 spindles and corresponding machinery will make these coarse fabrics. This machinery can be set in motion for $75,000,000.

Were these fabrics made in Indiana, and at the most convenient positions, the savings in carriage of cotton cloth, food, &c., to say nothing of taxes, would exceed *twenty millions* of dollars a year. The incidental advantages to the West, attending such a change, would be expressed by a sum vastly larger. This would be the result of our manufacturing only the coarser, least expensive and least profitable goods, and the result is susceptible of proof in which there can be no uncertainty. Indiana could spare all the labour, and the South and the West could now easily furnish the capital, even if that capital was money. But if we made the machine-shops, and furnaces, and the rolling-mills, the money we should need would be merely the amount required to import our tools and patterns; the remainder would be but the representative of labour, and the product would be the investment made by labour.

The Tariff.—Under the present tariff system, our market for goods with the frequent and rapid communication with Europe, must continue to be greatly influenced by the state of trade there, hence, the sudden changes in prices which we often experience, and the difficulty of forming reliable opinions as to the future. Should the tariff be revised at the next session of Congress, and the system of specific duties be substituted in place of the present uncertain *ad valorem* rates, we shall be less affected by the low wages and fluctuations in trade, of foreign countries.—*Phil. Com. List.*

To Destroy Thistles.—Mow the plants close by the ground, split open the root stalks, and put salt in the opening.

PROSPECTS OF THE FARMERS.

"In the event of the harvests in Great Britain proving an average, the demand on our breadstuffs will not experience any important reduction, as the difficulties on the continent are likely to continue, and the usual supply from the ports of the Baltic reduced. Independent of this, the state of prices in our markets enables us to ship largely, with a prospect of good returns; and during the season of navigation on our rivers and canals, we can, without doubt, compete successfully in the markets of Great Britain, with any part of the continent, in the leading articles of breadstuffs."

We take the above from a journal that advocates the maintenance of the tariff of 1846, because it is of opinion that it is sufficiently protective of the farmers and planters in their efforts to draw to their sides consumers of their products, converters of food and cotton into cloth, or food and ore into iron—and we do so because we desire our readers to see the contingencies upon which depends even the maintenance of the present low prices of grain. IF the people of Germany continue to make war upon each other, and to waste a great deal of food (and blood) THEN prices may be maintained; but suppose they arrive at a settlement of their differences, what then is to happen? That we are not informed, because it was obvious to the writer that such an event would produce a state of things among the farmers of the Union that must inevitably lead to a change of system. We are making a market for immense quantities of foreign food in the form of cloth and iron, and thus compelling our own producers of cloth and iron to become producers of food, while holding the market of England by the wretched contingency of a continuance of the existing state of war. Throughout the Union, the planters and farmers desire something like permanency, but their rulers insist on making them dependent on the caprices of the people, the banks, and the sovereigns of Europe, and the consequence is, that producers bear so large a proportion to consumers that we waste more labour and more food *than would pay for all the exports of England to every part of the world.*

The author of the above paragraph, in common with the late Commissioner of Patents, entertains no doubt that we can "compete successfully" in the great grain markets of the world with the serfs of Russia and the fellahs of Egypt. He thinks, however, altogether of the merchant—of the man who lives by commissions. To him, it matters little if the *producer* be ruined, provided the *exchanger* can make a profit. "The state of prices enables us to ship largely," says this free-trade advocate. And what *is* the state of prices? A bushel of wheat that has travelled from Chicago to New York, a distance of 1500 miles, is worth 73 cents, from which are to be deducted all the commissions and all the freights, leaving to the farmer probably about 35 cents. If the Baltic ports be opened, it may fall to 60 cents, at which price we may still perhaps "compete successfully" with the people of Poland, and Russia, and Egypt. So is it with cotton. We have ruined the poor Hindoos, and now our planters are being ruined. Labour has been *driven* into agriculture to such an extent as to produce a large surplus, and to render us dependent upon the chances and accidents of European affairs to such an extent as to make every pursuit a lottery, and the only remedy that occurs to our wise legislators is to adopt such measures as will diminish the home market and increase our dependence. It is certainly time that the planters and farmers should begin to think a little of the politics of agriculture. When they shall do so, they will learn that the nation that is least dependent on distant markets can obtain the largest prices in those markets, and that the only way now left to raise prices is to increase the power of home consumption.

THE FARMERS' NOTE-BOOK.

How "MONEY MAKES THE MARE GO"—and how it may be profitably employed in ploughing the land as well as in ploughing the ocean. The Committee of the Montgomery County (Md.) Agricultural Society awarded the silver goblet for greatest improvement in five acres of land to Benjamin Hallowell, notwithstanding he failed in his promise to give us a sketch of his experience in the use of bone-dust, lime, guano, &c., as the means of judging of their comparative cost and value! The award was founded on the following certificate—see June number of the American Farmer:

A Lot of Five Acres, most of barren rock-land, (poor old field,) clay soil, stiff and stony.

In 1843, latter part of winter and early in the spring, it was ploughed and limed, 50 bushels per acre; in May, 10 bushels of bone per acre was applied, and the field planted in corn, putting poudrette in the hill at the rate of one and a half barrels per acre. In September the corn was cut and hauled off, and the land dressed, one acre with guano, one with poudrette, and the rest with bone, at a cost of $8 per acre on the farm, and in wheat and timothy.

Cost of Manures.

250 bushels of lime	$62 50
50 bushels bone, on the farm	25 00
7½ barrels poudrette, on farm	15 00
Manure for wheat	40 00
Plaster on grass	2 25
Cost of putting in and cutting corn	18 75
Putting in wheat	11 25
Seed wheat, 10 bushels	10 00
	$184 75

Crop.

Corn, 250 bushels	$125 00
Wheat, 100 bushels	112 35
Three crops of grass, 20 tons	200 00
Clover seed, 7½ bushels	37 50
	$474 85

The land now appears made, having on it a very large second crop of clover and timothy, both in head.

RICHARD S. KIRK, for
BENJAMIN HALLOWELL.

ON PLANTING TREES.—Sir Walter Scott makes the Laird of Dumbiedikes give to Jock the advice we would give to every farmer, young or old:—"Jock," said he, "when ye hae naething else to do, ye may be aye sticking in a tree; it will be growing, Jock, when ye're sleeping."

The most exemplary tree-planter that we remember at present was the late General T. M. Torman, of Maryland. He planted hickory-nuts and chestnuts in great numbers, up to the time that he was 80 years old. We remember his expedient for propagating the beautiful Scotch broom, which so splendidly ornaments the roadside for a mile of poor soil on the Annapolis road. The general was in difficulty to hit upon the right time to sow the seed, to ensure success. So he made his overseer make a small rent in the bottom of his pantaloons' pocket, and told him to fill the pocket as often as it emptied itself. Away went the overseer, thinly scattering the seed over all parts of the plantation, at various seasons of the year, until dame Nature was caught in the proper mood for the work of propagation; and the result was nothing less than is to be expected in such cases.

In the Transactions of the Essex Agricultural Society, (Mass.) for 1848, there is a valuable report on Forest Trees—the substance of which we will

give in a substantive article. It closes with the following striking passage:—

Even if we are indisposed to re-create the forests which have been wasted, we may some of us be induced to adorn the roadsides near our dwellings with trees. As they grow in size from year to year, they creep into our hearts' best affections. Our associations become connected with them; our children grow up with them, and learn to love them, and our children's children may enjoy their shade and gambol beneath them. Indeed, as compared with the life of man, the trees which he plants soon assumes a superiority over him. From his tender nursing, it springs into existence and becomes his shelter and his protection, and will continue to shelter succeeding generations long after he is gone and forgotten. *The tree under which Washington stood, when he first drew his sword to take command of the army at Cambridge, is still vigorous and flourishing as ever, while all of that gallant band of patriots have passed away.*

Draining.—It is not land alone that requires to be *drained;* for though there is scarcely a farmer who does not leave more or less of his *best* land undrained, and therefore unproductive, losing for ever the interest on the money he values it at, yet it has been well said, that "a general enlightened education is equally necessary, *to drain the farmer's mind of obsolete prejudices.*" And the best system that could possibly be established is exactly that which is taught to those elected for West Point, (there to be educated at the farmer's expense,) only substituting the art of *tillage* for *tactics.* All else is exactly adapted to prepare the student, in the most efficient manner, to become an active, valuable citizen—useful and honourable to himself and his country. A West Point education makes him a botanist in a measure, a geologist, a chemist, a mathematician, and a civil engineer; prepares him to examine the qualities of land, the strength of timber, to build roads, and to plan canals, and to construct bridges and farm-buildings, and to pronounce on the proportions of parts and the value of materials. All this is the fruit of a government West Point education, and every farmer of sense and spirit should insist on one school in each State, where men should be reared to go out annually all over the country, carrying with them this sort of knowledge, and prepared to teach in the common schools.

NORFOLK (MASS.) AGRICULTURAL SOCIETY

Will hold the first of its annual meetings at Dedham, on the 26th of September next. It needs no better auspices for a prosperous existence than coming into life under the presidency of Col. M. P. Wilder. If it can't conquer under *that* sign, it may as well give up the ghost.

In Massachusetts there's no use in saying that a place has the advantage of being near to another place—as Dedham to Boston, for instance—for there, with their railroads running everywhere, and crossing everywhere, every place is near to every other place. There's no such thing as distance, if we refer to time; and then they carry you so cheap, as well as quick—not less than twenty-five miles an hour anywhere, for two cents a mile. Every one is interested in railroads and factories, and all support them. We saw fifteen hundred men come by a single train, more than forty miles, to Worcester, by 9 o'clock A. M., to the cattle show, to be taken back to Providence that afternoon, all for less than $1, through tickets. From Baltimore to Washington they make you pay $1 80 to go forty miles, at a rate less than Trustee trotted his twenty miles, within the hour.

Not only travelling, but every thing, is cheap in New England, and that's the way every thing thrives.

OYSTER SOUP IN MASSACHUSETTS.—HOW THEY MAKE, AND HOW THEY SELL IT.

At the last cattle show at Worcester, away out in the heart of the State, we saw a chap standing against the side of a house, hemmed in by a long counter on three sides, and on the counter, "all in a row," a deuced sight of small pint, common delf bowls. What, thought we, in the name of wonder, is that fellow after, with all these bowls? So we took a peep into the bottom of one, and there was a mite of butter, a spice of pepper, and a thimble-full of salt—all waiting, for we couldn't think what. But presently, half a dozen land-lubbers came up, each calling for his bowl of oyster soup. So we kept our eye on 'em; but how was the oyster soup to be so readily had? The problem was soon solved. Jonathan snatched up a large hard cracker, and with one half turn between his hands, in an instant ground it into bits—threw one cracker into each bowl, on top of the butter and pepper and salt already there, cut and dried; and then, turning half round, seized the long handle of a ladle, and as quick as thought, from a kettle behind him, filled each bowl with *hot oyster liquor*. The countrymen each seemed to relish his soup, guessed it was pertickler nice, paid their four-pence, and went their way, all parties well satisfied. Now perhaps the oysterman made one cent on a bowl, but then he sold to hundreds; and so it is with their railroads, and every thing else. They charge little, but *they do a great deal;* and all their roads, and factories, and banks are popular, for they serve the convenience of all, and all feel interested in their permanence and prosperity. Ah! they are a wonderful people, those Yankees! They know the benefit of having the loom and the anvil near to the plough.

SECOND ANNUAL FAIR OF THE MARYLAND STATE AGRICULTURAL SOCIETY

Will come off at Baltimore on the 10th, 11th and 12th of October next. In the "Supplementary Sheet" of "The American Farmer" for July, containing a list of prizes, there will be seen, on the part of the President and Trustees, every disposition to make it as comprehensive as possible; and if, in some departments, as in those of *Implements and Machinery* particularly, the amount of prizes bears no proportion to the importance of the objects, and cannot be supposed, in itself, to form an active stimulus to invention, or recompense for the trouble and expense of exhibition, the reason is not from any failure to appreciate the value of labour-saving implements or machines, but for want of funds to propose a more adequate stimulus for their production. The truth is, that in this, as in all the departments, the reliance must be rather on the patriotism and public spirit of the friends of the cause, than on any means which the Society has, or can hope to have, to make equivalent pecuniary recompense to the exhibitor. The worth of the premium consists in the *stamp of approbation* impressed by the sanction of committees chosen, as on this occasion they have been, not with a view to give currency to the stock or other commodities of particular individuals, (potential, as in some Societies, by their official positions, and connection with particular cliques,) but with impartial reference to their qualifications, and under an abiding desire to do justice, and to justify confidence and respect for the result.

In our judgment, far above all are they entitled to notice and distinction,

and the public respect, who make such discoveries in the chemical or mechanical philosophy of agriculture, as will enable the farmer to obtain, at less cost, greater returns from his land. When public sentiment shall be thus prepared to exalt men who invent new manures, and new machines, above the heads of political demagogues, then, and *not till then*, will agriculture have gained and be prepared to maintain its just ascendancy over other and more limited interests.

This, by the by, is the season of the year for hatching out that numerous brood of the human family—*candidates for office!—dear, disinterested, loving friends of the people!!*—and especially of the *honest, hard-fisted yeomen of the country!!!* Biennially, the summer solstice seems to warm and quicken these gentlemen into a keen sense of devotion to the sovereigns, and thus, as autumn approaches, you will see them, as they come out of the ground, in the grub state, take wings, and, flying to the top of a neighbouring stump, proclaim themselves the exclusive friends of the *landed interest.* If, then, they ever mean to do it, let the farmer and the planter, disregarding mere party names, now call upon these biennial patriots to say what they will do, if elected, to procure *appropriate instruction in the principles of agriculture*—as much, at least, as is now given, at the public expense, in the use of the cannon and the sword. Every true friend of the plough should give a cold shoulder to all candidates who hesitate or boggle about refusing money for military, until as much, at least, is given for agricultural education.

May we not hope that at the meeting of the Maryland Agricultural Society, in October, we may be favoured by each member of the last Congress with a written report, to the President of the Society, not of what he *thought* of doing, or what he *wanted* to do, but of *what he did*, in compliance with the resolutions passed at the last meeting, and promptly communicated and urged upon him by the President of the Society? Where men are not called on to account, they soon lose all sense of responsibility, and are too apt, "any how you can fix it," to consider the requisitions made upon them by agriculturists as so much waste paper, to be disposed of to suit their own convenience.

But we have only time to say further, that every farmer in Maryland ought to feel himself bound to augment this exhibition in every department that he can. The mischievous error in such cases is, that too many come as mere spectators, without even becoming members of the Society, and even those who do, hold back from exhibiting any thing, because they are not *sure of excelling*—while the fact is, that he who sends the best he has, though it may be inferior, is very often entitled to more credit than some who win prizes merely by repleting a few animals or a few acres with excess of food or manure.

No Society of the kind, ever yet organized in our country, has given higher promise of achieving useful results; and although it is not yet possible to foreshadow the valuable fruits it may yield in the progress of its growth, enough is already discernible, in the spirit of inquiry and improvement which is obviously spreading over the land, to justify the suggestion and the hope that every man will feel himself called upon to do what he can to *add to the elements of its existence and usefulness.* But, let us hear from those dear lovers of the landed interest—the would-be legislators of the land! Let them be made to know that when the farmers congregate from all parts of the State to promote their common welfare—what they say *they mean!*

AMERICAN FARMERS, IN THE EYES OF ENGLISH TRAVELLERS.

A Mr. John A. Whitaker, an English farmer, has just returned to his country, from a tour in the United States and in Canada. He publishes a long letter in "The Mark Lane Express," in which he says:

The American farmer purchases the fee-simple of his property at 5*s*. per acre. Until the English market was opened to him, he could merely gain a comfortable existence, and but little profit otherwise on his capital.

He pays no Tithes; no Church Rates; no Poor Rates (in the West); no Income Tax; no Highway Rate, in money; no Turnpike Tolls, with few exceptions.

The Americans are jealous of the supremacy of England in commercial and manufacturing affairs; and as a nation in its youth, this may not be unreasonable.

To my astonishment, in that untaxed country, I found the general feeling in the North and West in favour of greater protection to interests which are already protected. They are nearly unanimous in opposition to the tariff of 1846, which is favourable to Great Britain.

They say, "We are an untaxed people, comparatively, and we can afford to set aside the general rules of political economy, and render America, through protection, self-productive of most articles, and thus independent of other countries." The cotton grower of the South is alone opposed to this feeling, and his power, based on slavery in this respect, is, thank God, rapidly on the wane.

The Whig or Conservative party have just succeeded to power, and by almost an unanimous vote of the nation, raised General Taylor to the Presidency. The President, in his inaugural address, has nearly pledged himself to greater protection to native industry.

Mr. Lawrence Abbott, the most extensive manufacturer at Lowell, was offered the embassy to England, and this offer was supposed to intimate the view the administration take of the tariff of 1846.

WHEELING (VA.) SILK MANUFACTORY.

The editor of "The Wheeling Gazette" has been examining the stock of silk goods manufactured from the cocoons, at the Wheeling Silk Manufactory of John W. Gill, Esq., and is really surprised to find that goods so beautiful in texture and colour are produced in Wheeling, or, indeed, anywhere in the United States. In their texture, particularly, he thinks them superior to most imported articles of the same sort, certainly so far as *durability* is concerned. Mr. Gill is first, if not the very first, to establish the manufacture of the finer silk fabrics in the United States.

There is a very considerable silk manufactory at Paterson, New Jersey, of the operations of which we shall give an early account. Considerable quantities of silk were exported from the South, particularly Georgia, before the Revolution. That is our true silk and fine wool region. The culture of silk there would be much more feasible than that of tea—of the culture of which, in the Carolinas, we have accounts near thirty years ago, in the old "American Farmer." We distributed tea seed there, for that purpose, ourselves, twenty-five years ago, or more. *It won't pay*—but silk would, under proper encouragement. In 1840 we produced 61,552 pounds of cocoons in twenty-nine States and territories.

[From the Report of the Commissioner of Patents for the year 1848.]

REPORT OF THE SENECA COUNTY AGRICULTURAL SOCIETY.

To the Executive Committee of the New York State Agricultural Society:

The agricultural condition of the county of Seneca through the past year (1848) has been much improved; the cultivation of the soil has received more careful attention than for many previous years, and the barn-yards and manure heaps are better managed; a necessary consequence is cleaner fields, with larger crops.

Seneca county is more devoted to the cultivation of wheat as a principal product than any other grain, yielding annually about 550,000 bushels. The cultivation of Indian corn has increased within two years, and may be estimated this year at 400,000 bushels. The oat crop is unusually large, amounting to about 400,000 bushels. Barley is not extensively cultivated, but may amount this year to 120,000 bushels.

Heretofore the Hutchinson wheat has been preferred to other varieties, and fully maintains all its excellencies; the Soule's wheat has been much increased, and finds additional advocates from year to year. During the past season many farmers have cultivated a wheat from Ohio, which has yielded a good return, but needs more experience, to be adopted in competition with the Hutchinson or Soule's varieties. The product of this county in wheat will average about 20 bushels per acre, and as compared with the crop of 1845, the excess of this year is equal to 14 per cent.

The demand for Indian corn for export in 1847, has given an impetus to the cultivation of that grain hitherto unknown in this county. Until within a year or two it was a neglected plant, many farmers doubted the applicability of the soil to a full development of corn; now, however, it seems that large crops yielding a high average are produced. The quantity raised in 1841 was 178,674 bushels; in 1845 we produced 205,000 bushels; and the crop this year is probably 400,000 bushels. The average yield per acre is 32 bushels, and fast increasing, as we have many farms which produce at the rate of 60, 75, and 80 bushels per acre.

The oat crop, as stated, is very large and good this year, the opening spring having been very favourable. As an example, the town of Lodi produced, in 1845, about 26,000 bushels of oats, and this year the crop in that town is 50,000 bushels. The adjoining town of Covert will present an equal yield of this grain. In 1845 the oat crop was 292,397 bushels; this year the county produces 400,000 bushels.

Barley has deteriorated in this region generally; the quality of the barley produced this year is believed to be inferior to that of last year, and the grain less in weight per bushel; the straw, when harvested, exhibited a shortness and feebleness unknown heretofore. This grain has not at any time been a favourite object of cultivation in this county, and probably receives less attention than is due to it. As a crop, it consumes from the soil a far greater amount of its riches than the more valuable wheat plants, yet by a proper cultivation the product per acre of barley may be raised so high as to give an equal profit with wheat, and prove a powerful aid to the farmer as a spring crop, occupying his ground little more than three out of twelve months. The deterioration of the seed in this section has induced the attempt to introduce, direct from England, the Cheltenham *barley*, which is a variety of the six-rowed, and said to weigh over fifty pounds per bushel at all times. The average yield of barley this year will not exceed twenty-one bushels per acre.

Rye is favourably cultivated in the towns of Junius, Tyre, and Waterloo, where our enterprising farmers have a lighter soil than other portions of our county. The crop exceeds the usual average about one-fifth; it is not large, as the more important articles of wheat and corn take a prominent precedence.

The very favourable state of the atmosphere during the spring months, and at the season of the hay harvest, enabled the farmers to secure more than an average crop of hay, probably one-third more than the previous year. An annual loss is incurred on this crop by the too late ingathering of the timothy hay. As the grass ripens here generally at the period of our wheat harvest, it is cut too late; that is, not until the seed has nearly ripened, and when the straw and leaf has parted with most of its nutritious power. Either a greater supply of agricultural labourers, or more perfect agricultural labour-saving machinery, must be presented to remedy this annual loss. The crop this year may be estimated at 38,000 tons.

Buckwheat is raised to some extent, and frequently as a green crop for ploughing into the soil as a manure.

The Potato crop has suffered much from the disease usually called the rot; a disease beyond the comprehension of any one in this section, and without any known remedy. There are several farms on which it has not yet made its appearance, while on the farms adjoining it appears in its most destructive form. Neither the mode of cultivation, the composition of the soil, nor the position of the ground, nor the observations of careful men, offer any reasonable conjectures for results so widely different. The whole crop of the county this year will not probably much exceed 200,000 bushels.

Flax has for many years been a source of early income, and the proprietors of oil mills have offered inducements for its cultivation. As, however, the exhaustion of the soil by this plant is from year to year better understood, the cultivation falls off—in several towns in this county it is wholly abandoned; for it is ascertained that the elements of flax makes a heavier draft on our soils, for the growth of the plant, than any other, and without giving any compensating return; while, for its proper cultivation and full development, it requires a high degree of manuring, which can be applied with more enduring benefits to the cereal than to the oil producing seeds.

Much and increasing attention is given to the propagation and production of the best varieties of fruits; extensive orchards have been planted during this year, and more careful pruning of the older orchards has been practised. One of our excellent farmers in Seneca Falls has established a peach orchard of great extent, besides other fruits. Another enterprising farmer in Fayette has planted an extensive pear orchard; so, likewise, in every town in the county has every choice variety of fruit been cultivated and extended.

For many years the apples of Seneca county have found an extensive demand and ready sale in Albany and in the city of New York, at an average cost here of twenty-five cents per bushel.

There is one exception to the general and successful propagation of fruit; the plum trees have suffered severely; and in some places have been totally destroyed by the worm, which causes the unsightly excrescence commonly called here the "black blotch."

Timely care and pruning would probably have prevented this disaster, and we have reason to hope that our farmers will hereafter examine into and study the causes of such frequent and mortifying losses, most or all of which are inflicted by the insect tribe. And here I would state that we have, from time to time, suffered much from the Hessian fly, and the grain moth; their ravages have, in many instances, been extended to our crops of barley. The grub, and the wire-worm, annually diminish the profits of

many of our industrious farmers, and as often do we quiet our murmurs by the comfort of hope for exemption hereafter—a vain hope, unless we cautiously examine the habits and changes of the countless insects which naturally infest our fields and crops. This remark is called for, because notice has of late been drawn to the destruction of grass in meadows, wrongfully attributed to defect in the soil; for the insect aphis has been found in numbers beyond enumeration, all of them feeding on the herbage of the field. That the remedy is within the easy reach of the farmer there can be no doubt; and there are many who, from precaution, do not suffer materially.

We owe many thanks to the several gentlemen connected with the State Agricultural Society for the information derived from them upon this subject, and indulge the hope that the agriculturists of this county will benefit by it, and in time add to the knowledge on record.

It may well be doubted whether any particular variety of wheat is exempt from the attacks of the insect tribe; the same variety which was reported to withstand their ravages during one season has fallen before them in another.

In this wheat-growing region the dairy receives that attention only which will supply the farmer with the needful milk and butter for his establishment; and it may be stated that the county barely produces a quantity sufficient for the supply of its population. The product of butter in 1845 was 816,000 pounds, giving an average of about thirty-four pounds per head, per annum, to each inhabitant. The quality of the butter is generally excellent, causing a demand which will naturally affect a better supply.

The stock of Seneca county is good, the prevailing breed being the Durham or short horn, from stock imported from England; and also Devonshires. The cross of these cattle with native cows is found to produce good milkers.

Much attention is paid to the breeding and raising of horses, and they improve yearly.

The sheep of this county are, for the most part, merinos of fine wool; the fleeces average 3½ pounds each. The low prices of wool through the present year has induced many farmers to reduce the size of their flocks, a course probably improvident; for, upon a careful examination of the subject, we have reason to believe that a remunerating benefit can be derived even at present prices. More careful foddering of the flocks under shelter through the winter months, and more economy in the mode of feeding, will probably meet the difference in the market values of wool. The number of sheep in 1845 was 72,000; they now amount to 71,000.

Swine offer but little inducement for their propagation, except to consume the offal of the farm. The stock mainly consists of Berkshire, Byfield, and the common swine. Recently, a boar and sow direct from China have been introduced into the county, and a cross established with the Berkshire. The result is a breed called Tonquins; they have the small bone of the Chinese sow, consume but little food, lay on fat very readily, and at the age of fourteen months they average about three hundred pounds each, running at large.

The introduction of well-constructed farm machinery and implements has undoubtedly contributed much to the improved condition of this county, and enabled the farmers to obtain larger profits by means of the great *saving of manual labour and of time.*

Among the most important of these machines is Hussey's reaping machine, many of which were used here, for the first time, during the last harvest. By the aid of this reaper, with the previous use of the cultivato

named below, *several* farmers have been able *to raise* and prepare their wheat *for delivery*, in perfect order, at a cost varying from twenty-six to thirty cents per bushel.

The cultivator alluded to was introduced among us by Mr. Tracy, of Newark, in Wayne county; it is an improvement on Ides's patent, which our farmers find an admirable implement; twenty-three were put into active use the past season.

The recent improvement in the plough by Mr. Burrall, of Geneva, and other men of sound scientific and mechanical knowledge, has materially abridged our labours in the field; while the stock feeder has been no less benefited by the corn and cob crusher of Pitts and Sinclair, and the valuable portable grist-mill of Ross and Co., of New York, by means of which the food for a large stock of cattle is prepared in a short time, as well as meal and flour for domestic use. Another advantage has been obtained from the use of Ross and Co.'s mill, by converting all the foul seeds collected from the wheat crop by the fanning-mill into a highly nutritious meal and food for cattle, thus avoiding the reproduction of pigeon-weed, cockle, summer grass, &c.

An attempt has been made to collect the agricultural statistics of this county, under the auspices of the county society; the returns or reports from the several towns are transmitted herewith. They are not presented as entirely correct, and must be received as the nearest approach to the truth which can be had, until the legislature shall adopt the easy and more accurate method of annual returns from the whole State, through the instrumentality of the town assessors.

The great importance of information thus derived must be admitted by all; for it is the test and very foundation of the principles of political economy. It gives us the condition of our whole State, and the comparative advantages of each county. By this knowledge spread before us, we more readily avail ourselves of the benefits enjoyed by our sister counties, and impart to them any peculiar benefit possessed by our own. True, this is a very narrow view of the importance to be derived from official reports of the condition of our State; but even this renders it very desirable.

From the several town reports a table has been compiled, and herewith transmitted, exhibiting the principal products of Seneca county for the year 1848, the number of acres devoted to the several crops, the quantity of seed sowed per acre, the quantity raised per acre, and the cost of production per acre; from these data and others given, the profits derived from each crop are ascertained and noted both per acre and per bushel. In the estimation of the profits, neither rent nor interest on the cost of the land has been included. Various valuable inferences may be drawn from a careful examination of this table.

Thus you have a general view of the agricultural condition of this county, which, if incorrect, will be found to err in the endeavour to undervalue quantities. The gradual improvement in cultivation is manifest, and a commendable strife for excellence and neatness in our agriculture is openly shown by very many of our excellent farmers.

The annual fair and cattle show did not draw out as large a number of our farmers as upon some former occasions; nor could it be expected that they would drive their cattle and other stock through roads rendered heavy and wet by a continuance of rain for several days preceding the celebration; nevertheless, the exhibition was highly respectable and interesting. The annexed report of the Secretary will detail the proceedings of the Society.

The Treasurer's account and vouchers have been forwarded to the Comptroller of the State, and exhibit an amount of cash received from mem-

bers equal to $192·25, and from the Treasurer of the State $74; making the aggregate receipts to be $266·25. The amount of premiums and expenses paid is $221·61; leaving a balance in the Treasurer's hands of $44·64.

In conclusion, it must not be omitted to state that the distribution of the Transactions of the State Society is shedding a vast benefit on this county; they are sought with avidity, and perused with care and industry, causing discussions, and inculcating lessons not to be derived from other sources. This annual work from the State Society has, in very many instances, provoked an appetite for agricultural and horticultural knowledge, and induced many to seek more frequent contributions of facts connected with farming, and thus has been the means of extending the thinking and reasoning class of men who examine the pages of "The Cultivator," "The Genessee Farmer," and other publications so zealously devoted to our farming interests.

From these sources science is made to confer lasting benefits upon us, driving away and steadily diminishing the misty baleful influences of ignorance and empiricism.

J. DELAFIELD,
President Seneca County Agricultural Society.

December 30, 1848.

Wages, with Board and Lodging.

Towns.	Per month.	Per year.	Per day.	Per week to females.
Covert	$8 to $13	$100 to $120	$0·50 to $1·50	$0·50 to $1·25
Fayette	8 to 12	100 to 120	50	50 to 1·25
Junius	10 to 15	125	62½ to 1·50	50 to 1·00
Lodi	9 to 13	100 to 140	50 to 1·50	50 to 1·50
Ovid	9 to 13	100 to 144	50 to 1·50	50 to 1·25
Romulus	10 to 13	100 to 140	50 to 1·75	50 to 1·50
Seneca Falls	9 to 12	100 to 150	50 to 1·50	50 to 1·25
Tyre	8 to 14	96 to 140	50 to 1·50	50 to 1·00
Varick	10 to 12	100 to 140	50 to 1·50	50 to 1·25
Waterloo	10 to 12	108 to 140	50 to 1·00	50 to 1·25

Aggregate Results as to Seeds only.

Kind.	No. of acres.	Quantity produced.	Whole cost of production.	Market value.	Amount of net profit.
Wheat	35,100	644,960	$314,800	$709,456	$394,656
Barley	5,771	124,195	26,721	62,097	35,376
Oats	10,736	411,650	49,563	102,912	53,346
Rye	2,200	28,750	6,940	20,125	13,215
Buckwheat	4,348	76,940	13,754	38,470	24,716
Indian corn	12,756	409,480	91,902	184,266	92,364
Flax	772	6,884	3,236	6,884	3,548
Grass seed	6,348	14,033	19,044	42,099	23,055
	78,031	1,716,892	525,960	1,666,309	640,279

Upon an examination of these results from seeds produced in Seneca county in 1848, it appears that the whole number of acres employed in the production of 1,716,892 bushels is 78,033 acres, from which has been derived a net profit of $640,279. This shows an average net profit of $8·20 per acre, or 16½ per cent. on capital invested in lands thus employed, costing fifty dollars per acre.

[We regard the above as a model in its way—the fruit of a superior mind, devoted with praiseworthy zeal to the cause of the plough. There ought to be in every State an agricultural bureau for obtaining such returns. But is not the real question, what average interest the farmer gets on *all* his capital in land—not on the acres that happen to be in wheat?—*Ed. P. L. & A.*]

THE WOOL TRADE.

"THE WOOL GROWER," as our readers know, is a monthly journal of sixteen pages, published at Buffalo, at 50 cents a year, and edited by T. C. PETERS, Esq., who has established a wool depot, in regard to which he says:

"The wool is sorted by the fleece, and various grades made, according to the wants of the trader. Full-blooded Merino wool is considered the standard, and is No. 1. From this we grade down to No. 5, which is the coarsest common wool. Full-blooded Saxony is as Prime 1, and from that we obtain *extra* and *super*.

"Out of the medium grades we sort a peculiar kind which must be of a long, strong staple, which is used for de laines. For this kind of wool I have an order to the full extent of all I can get in.

"The charges are one cent per lb. for receiving, sorting and selling, and insurance, which will be 25 cents per $100 for 3 months or less.

"Sacks will be furnished at 75 cents, and 37 allowed if returned in fair order. Sacking will be furnished at from 10 cents to 12 per yard. Also a large assortment of wool twine will be kept constantly on hand.

"Advances will be made at the usual rates. All wool sent to the depot must be plainly marked with the owner's name."

When will the growth of wool and the establishment of such depots in the South encourage and sustain each other? We should like to see the commencement of an attempt in Philadelphia, Baltimore, Norfolk, Wilmington, (N. C.) Charleston, and Savannah. They might be connected, as in the case of Mr. Peters, with agricultural stores.

"The Plough, the Loom, and the Anvil" is sent regularly to "The Wool Grower," but whether received or not this deponent cannot say, not knowing.—Ought not "The Wool Grower" to come out sooner, or alter its date? The following are extracts from his July "REVIEW OF THE WOOL MARKET:"

"The amount of wool going through our canal indicates pretty clearly that it has been bought up more rapidly, and sent forward freer than at any former period. The wool going East from this point, to 27th June, as appears from a statement kindly furnished at the Canal Collector's Office, was

	1849.	1848.
From this State . .	103,106	137,902
" Canada and West .	1,373,622	737,126
Total . . .	1,476,728	875,028
By railroad	100,000	
	1,576,728	

Making an increase of this, over last year, of 701,700 lbs. The entire shipments from this point East, by canal and railroad, for the year 1848, equal about six millions of pounds, so that up to the first of July, the shipments will make full one-third of all that went forward last year. We must add to this, also, the increased quantity which has gone from this State. For, although the shearing has been uncommonly late, yet the wool has been bought up with great rapidity, and is on its way to the manufactory, or to the dealers in the Eastern cities.

"As we have remarked in another place, and, as is stated by our correspondent from Boston in the last number, there is no 'rubbing out the fact,' that we do not grow wool enough in the Union for our own home consumption. And if the mills can have active employment through the balance of the year, they will lack full two months' stock, which must be supplied by foreign wool.

"We predicted that cloths would not advance before July; cloths have already advanced; the market is becoming firmer, and for the next three months, there will be a steady advance, until prices will touch a point that will induce orders for foreign goods. The recent news from California is of that character, that we can have no doubt as to the immense supplies which must be furnished from this part of the Union. The whole coast of the Pacific must, to a great extent, be so supplied. Our proximity defies com-

petition. The wants of the market there are now well understood, and many manufacturers are already turning all their power upon the production of the proper fabric. The vast field which is thus opened to our enterprise will absorb all our supplies for an indefinite number of years. Gold there has begun to depreciate, or, in other words, the price of all kinds of property has enormously advanced, and the rise will be felt now, with increasing intensity.

"Wool must advance in price. It may be dull of sale, for July and August, but it should not fall off in price. We advance our depot price, 2 cents per lb. for all except the choice sorts. For very fine wool there will be no adequate price paid, until very late in the season. We consider it very unfortunate for all concerned, that fine wool has brought so low a price, for the last two years. Thousands of fine woolled sheep are being sold to the butcher, and their places supplied by coarser woolled, and, for the present, more profitable sheep. When prime Saxony wool must be sold under 50 cents per lb. it is no encouragement to grow it. Our fine wool manufacturers will be compelled to go to Germany ultimately for their stock, with how much profit, time will determine. We hope those who are able to keep up good blood will do so; but small farmers, we cannot advise to go beyond good grade sheep; say one-half to three-quarter blood."

RULES FOR THE APPLICATION OF MANURE,

DRAWN FROM THE WRITINGS OF THAT PROFOUND PHILOSOPHER — VON THAER.

We much question whether one farmer out of a hundred ever entered into any calculation to inform himself about the weight of a given measure of manure; yet how, without such calculations, can he tell whether his cattle are over or under-loaded, or his land over or under-dunged? Is there any business on this earth conducted with so little pretence to exactness, as that of agriculture? But how can it be otherwise, when there is, for it, no pretence of education, or systematic accounts of any thing—when, in fact, the idea is that any fool may make a farmer?

The real value of manure is increased by the fact that it progressively augments itself, and that, besides the produce it yields, an extra quantity of manure will, if properly bestowed, never fail to produce the elements of a fresh supply, so that it will soon be possible to cultivate those plants, successively, from which the largest sum of money may be realized. On the other hand, the manure diminishes in like proportion, if a scarcity is allowed to be felt, and an immediate and suitable remedy be not found and applied. One of the consequences of a scarcity or diminution of manure is a scarcity of straw; and where there is little straw or fodder, little dung can be obtained, and thus the quantity of manure progressively dwindles away until the soil becomes totally exhausted.

However expensive it may be to bestow this first quantity of manure on a soil which has been impoverished, there certainly is *no capital better employed than that which is expended in this manner.*

The usual load for a wagon drawn by four horses is thirty-six cubic feet of stable manure, half reduced, and in the state in which it is usually applied to the land. In this state, that is to say, when the straw has become soft and disorganized, without being wholly decomposed, and the dung is moist, yet not very watery, a cubic foot of it will weigh 56 lbs.; therefore a load of 36 feet contains 2016 pounds, which, for the sake of obtaining round numbers, we will reduce to 2000 pounds. Where the roads are good, and the weather favourable, this load may doubtless be increased; but, as a

period of fine weather is seldom chosen for carrying manure, this quantity will in general be found to be tolerably correct.

If the straw is not decomposed or altered, a cubic foot closely packed will not weigh more than 48 pounds, and in this case the volume or size of the load is increased, and contains from 45 to 46 cubic feet of manure.

When eight of these loads are distributed over an acre of land, it is considered that a good covering has been given. Each square perch then receives 88 pounds of manure, and each square foot nearly six pounds. If only five of these loads be allowed for each acre, as is generally the case, it is said then that the ground has been slightly manured, and each square perch receives about 55 pounds. And lastly, if 12 loads are spread over each acre, which must never occur where cereal crops are to be grown, (we of course do not include Indian corn,) unless the land has been completely exhausted, then the ground is said to have received an abundant manuring.

It is customary to allow only one-half the weight and quantity of manure above mentioned, when the manure is derived entirely from sheep, because the effects which it produces are at once greater and more prompt, but less efficacious in point of durability.

The periods of these manurings occur every three, four, six or nine years. The more frequently applied, the slighter they are; and the longer the intervals, the more abundant must the manuring be. Thus, it is necessary to take into account not only the quantity to be laid on at each time, but the number of times to be repeated.

HOW BEEF IS PROVIDED IN CALIFORNIA.

Early this morning a bullock was brought up and slaughtered in front of the house. The process of slaughtering a beef is as follows: A *vaquero*, mounted on a trained horse, and provided with a lasso, proceeds to the place where the herd is grazing. Selecting an animal, he soon secures it by throwing the noose of the lasso over its horns, and fastening the other end around the pommel of the saddle. During the first struggles of the animal for liberty, which usually are very violent, the vaquero sits firmly in his seat, and keeps his horse in such a position that the fury and strength of the beast are exhausted without producing any other result than his own exhaustion. The animal, soon ascertaining that he cannot release himself from the rope, submits to be pulled along to the place of execution. Arriving here, the vaquero winds the lasso round the legs of the doomed beast, and throws him to the ground, where he lies perfectly helpless and motionless. Dismounting from his horse, he then takes from his legging the butcher-knife that he always carries with him, and sticks the animal in the throat. He soon bleeds to death, when, in an incredibly short space of time for such a performance, the carcass is flayed and quartered, and the meat is either roasting before the fire or simmering in the stew-pan. The lassoing and slaughter of a bullock is one of the most exciting scenes of the Californians; and the daring horsemanship and dexterous use of the lariat usually displayed on these occasions are worthy of admiration. I could not but notice the Golgotha-like aspect of the grounds surrounding the house. The bones of cattle were thickly strewed in all directions, showing a terrible slaughter of the four-footed tribe, and a prodigious consumption of flesh.—*What I saw in California.*

ONE-HORSE CARTS.

BY EDWARD BOWLY, SIDDINGTON, NEAR CIRENCESTER.

PRIZE ESSAY.....From the Journal of the Royal Agricultural Society of England.

HAVING had five years' practical experience in the use of wagons, and nearly the same time of one-horse carts, on a farm of 170 acres of arable and 80 acres of pasture land, I have arrived at a satisfactory conclusion as to the comparative advantages of the latter. I will, as briefly as possible, point out what I consider to be those advantages.

We must first consider the saving of capital in entering a farm by employing one-horse carts instead of wagons. From the great variety of soil it is difficult to form a just estimate of the amount of horse-power required to cultivate a given quantity of land. We may, however, to a certain extent do so by taking for our purpose land of medium quality, of which description my own farm consists. I have no light plowing land, nor have I more than 20 or 30 acres of very heavy land. I will, therefore, relate my actual experience. In the employment of wagons and the old broad-wheeled dung-carts, I required one wagon, one cart, and three horses to every 50 acres of arable land. I also kept a light cart for general purposes. Now that I am employing carts, I find that I get through my work much more easily with two horses and two carts to 50 acres. The following is a fair calculation of the first outlay under the two systems:—

1 wagon	£25 0 0
1 dung-cart	15 0 0
3 horses	60 0 0
Extra harness	2 0 0
Proportionate cost of the light cart to 50 acres.	3 0 0
Total	105 0 0
Two 4-inch wheel one-horse carts	£25 0 0
Two horses	40 0 0
	64 0 0
Balance in favor of carts	41 0 0
Total,	105 0 0

This shows a saving of upwards of 16s. an acre, which many young farmers would find extremely useful to expend in stock or implements. There is also some annual saving in the expense of the repairs under the cart system, as well as that of the keep of one horse to every 50 acres. I believe there are those who think this of little importance; that they can keep horses at a very small expense, say from 3s. to 5s. per week; and that if fewer are kept, they must be fed more highly, and therefore the cost is much the same, forgetting that the more horses are kept the greater number of hands are required to attend them, whose time also is wasted if the animals are not in a state to do a good day's work; nor is the manure nearly so valuable as when the horses are kept in a better state. To estimate the saving of keeping one horse less to 50 acres, I will make my calculations from my own method of keep. I have not for years allowed my horses any hay. In winter I give them 10 lbs. of corn, [meaning oats or barley] 10 lbs. of carrots or swedes, and as much straw-chaff as they will eat, per diem. The corn I value at 6s. per week, the roots at 9d., and the straw with expense of cutting into chaff 1s. 3d., making in the whole 8s. per week, which, with 1s. for shoeing, &c., amounts to 9s. [or $2 25.] In the summer I give them green clover or vetches, without corn, which I value at 5s. per week, making 6s. with 1s. added for shoeing, &c.; the average therefore for the whole year will be 7s. 6d. each horse. It therefore follows that if we can save one horse in the cultivation of 50 acres, it will amount to nearly 8s. per acre.

I will now proceed to the working of the system. It is, I believe, generally admitted that one horse attached to a given weight, will move it more easily than two horses attached to double that weight. This arises not only from the advantage gained by having all the power of draught close to the work, but also all the power applied at the same moment, which is almost impossible where two or more horses, having different wills and steps, are attached to the weight; and for the same reason one horse will travel more quickly singly. I have often heard it remarked as teams have passed "how well the horses pull together," when, perhaps, they have been moving at something less than two miles an hour; but hasten them to four miles an hour, and this steady working team will draw very uneasily, one horse pulling to the right hand, another to the left; therefore a great saving of time is occasioned in the quickness of motion with one horse carts. When a cart is filled there is no delay in attaching the trace-horses, during which operation the one horse would be two hundred yards on the road. I know this might be done more quickly by having men ready to change the horses, as is the practice of opposition coaches, but I am speaking of the matter-of-fact working of the system. Then again, when the load is deposited, the one horse turns in much less time than the two or three. These facts are too self-evident to admit of contradiction; indeed, I believe the economy of carting manure with one-horse carts is generally allowed, but the employment of them in harvesting is much objected to. In this respect, however, I find them equally expeditious and economical. My actual experience is that three carts, with the harvest frames attached, will convey as much hay or corn in the straw as two wagons, and that they are bound with the ropes in the same time, therefore no time is lost in

binding. They are easier to pitch to than wagons, and not more difficult to unload; and all the advantages are gained of speed in traveling.

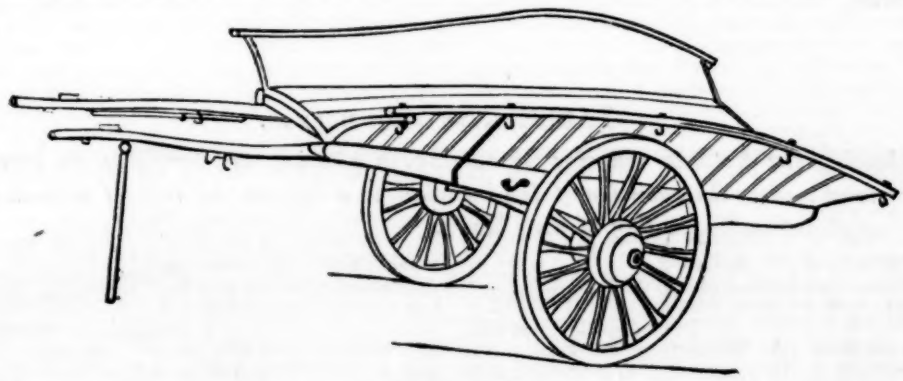
The facility with which carts are set to a rick, as compared with wagons, will effect a much greater saving of time than in working from a heap of manure; you can also draw the carts to all sides of the rick, thereby avoiding the inconvenience of drawing your rick aside by the great treading there generally is on the side on which you unload the wagons, the usual practice being to unload all on one side, from the wagon being too unwieldy in turning to be set at the other sides. My system in carrying a field, what we call "double handed"—that is, with two pitchers and two loaders—is to commence with one cart, having one pitcher and loader, and when that is half loaded to start another with the other pitcher and loader.—When the first is filled it goes to the rick, and is followed by the others in succession: by commencing in this way we keep on regularly through the day, having two carts loading in the field and two unloading at the rick, and the number of carts employed in going to and fro must be regulated by the distance of the field from the rick; if very near, one will be sufficient, and more than two are seldom required on any farm of moderate dimensions. I conceive it would not be generally useful to mention the time occupied in securing a given number of acres of corn with carts, as so much depends on the bulk of the crop, as well as the power of the men employed. I once accurately remarked the time of such an operation: it was in carrying a very heavy crop of 10 acres of *mown* wheat close to the homestead, which took with five carts four hours and a quarter from the first cart entering the field to the finishing off the rick with the last. The longer the distance of the field from the rick the greater will be the advantage of carts. Supposing each wagon to be drawn by two horses (three are frequently employed,) and that three carts will convey as much as two wagons, which I am certain will be more than borne out in practice; then three horses will take as much in the carts as four in the wagons, and they will perform the distance in little more than half the time. It is supposed that an additional expense attends carts in the number of boys required to go with them: this is not the case; the boys are younger and less expensive than those intrusted with wagons, and the horses do not need any boy in the field, as when they become accustomed to their work they will walk steadily beside the cocks without being attended. There is an impression that carts will not answer in hilly situations; we find, however, they are employed, to the exclusion of wagons, in some of the most hilly counties of England. I have certainly nothing very steep on my farm; but 50 acres lie nearly two miles from the rest of my land, on which road there are two very sharp pitches, up and down which I am constantly taking loads, and have never found more inconvenience with carts than I formerly did with wagons. But, to prevent any possibility of accident, there is now to be had the self-acting drag, which retards the wheels in proportion to the descent; there is also a very simple method of moving the load forward by means of a screw when going up hill, and backward in descending a hill. But I have found the carts I have answer so well without these additions, that I shall not go to the expense of either of these improvements at present. In taking out corn in the sacks, carts will be found far preferable to wagons, as in all the other operations carrying a greater weight with the same ease and in less time, each cart carrying 5 quarters of wheat. Nearly the whole of my wheat goes to a mill seven miles distant, on the road to which there are three steep hills. I always send two carts, carrying five quarters of wheat each, with one lad of eighteen or twenty, going twice a-day; and in summer, when the roads are very good, I have put 5½ quarters behind each horse: thus two horses would deliver 22 quarters in a day.

I have endeavored to answer all the objections I have heard used against one-horse carts, objections which I once strongly felt myself.—My attention was first drawn seriously to the subject from hiring a man to draw some stones for draining. He came with a horse only 14 hands high and a small cart, when the work he accomplished so surprised me, that I at once decided to try two light carts, which, after succeeding well in all other operations, I employed in the harvest field; and being fully satisfied with them in this capacity, I soon discarded every wagon from the farm.

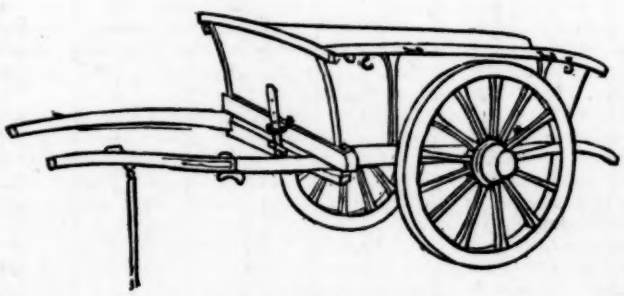
I have carefully endeavored to give a just estimate of the saving in horses and implements by the use of carts; since they were first employed by me I have effected a greater reduction in the number of each than is here represented. When I kept wagons I had not so much land by 20 acres in cultivation as at present; I then kept ten horses, four wagons, three dung carts, and one light cart; I now only keep six carts and six horses. I, however, attribute a portion of the saving to the use of the scarifier in many instances instead of the plow, and I now very rarely put more than two horses to a plow, while at that time I frequently had three; on the other hand, for two years past, I have each year carted 150 loads of night-soil a distance of a mile and a half, and 300 loads of road-scrapings, &c. half a mile, which is two-thirds more than I did during the time I had wagons. I have also done each year the following extra work:—carted 30 tons of potatoes two miles, 60 tons of roots half a mile, subsoil plowed 6 or 7 acres, and carted stones for 15 acres of draining 30 feet distant. I have therefore taken all these things into due consideration, and given the fairest representation in my power.

The description of carts I make use of are, five common Scotch carts and one skeleton cart; those of the former, with narrow wheels, cost me 10 guineas each; and with the 4-inch wheels (which I recommend) £12, with harvest-frame, &c. complete. The skeleton with narrow wheels cost me £10; it will carry more hay or straw than the others, its loads being in proportion of four carts to three wagons—it is more convenient for conveying poles, hurdles, &c.; and one on a farm may be useful, but it will not answer in dung-carting, and its advantages in harvesting are not sufficient to remunerate for the additional outlay of a double set.

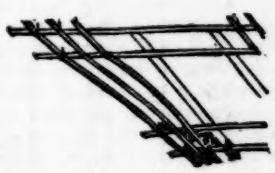
In conclusion, I may remark that the principle of one-horse carts is quickness of motion, therefore load according to the road to be passed over, but never reduce the pace of traveling; and I can assure those who are timid about them, that they are much less liable to accidents of every kind than wagons; and that, however prejudiced the workman may be against their first introduction, when he becomes acquainted with the system he will prefer it.



Skeleton Cart.



Scotch Cart.



Harvest Frame.

ADULTERATED FLOUR DETECTOR.

M. Boland, a baker, of Paris, has invented an ingenious instrument, called by him the aleurometer, the purpose of which is to indicate the panifiable properties of wheat flour. The indication depends upon the expansion of the gluten contained in a given quantity of flour, say 500 grains, when freed by elutriation from its starch. A ball of gluten being placed in a cylinder to which a piston is fitted, the apparatus is exposed to a temperature of 150 degrees: as the gluten dilates, its degree of dilatation is marked by the piston-rod. If 25 degrees of dilatation are not obtained, the flour is rejected, the best flour usually giving from 38 to 50 degrees. From experiments which have been made by Chevreul and Payen, it appears that the dilatation shows correctly the degree of deterioration which the wheat flour has undergone; and consequently the aleurometer offers itself as an instrument of practical importance. The same principle may be applied to various other purposes: indeed, Silberman has constructed a new alcoholometer, of a character similar to the aleurometer. There is also an instrument in use in Paris for showing the genuineness of milk, and the degree of richness of cream, invented by Dr. Donné, and called the lactometer. The practical use suggested by a contemporary, of such instruments, was well illustrated in Brussels on the 27th of June, 1844. That morning a body of police, armed with lactometers, were posted at the various gates or "barriers." They tested all the milk that was brought into the city for that day's consumption, and the consequence was that eighty large cans of it were condemned.—*English Paper.*

TABLE.... BY JOHN MORTON.

Showing the distance traveled by a horse, in plowing or scarifying an acre of land; also, the quantity of land worked in a day, at the rate of sixteen and eighteen miles per day of nine hours.

Breadth of furrow-slice, or scarifier.	Space traveled in plowing an acre.	Extent plowed per day, at the rate of	
		18 Miles	16 Miles.
Inches.	Miles.	Acres.	
7	14 1/8	1 1/4	1 1/8
8	12 1/4	1 1/5	1 1/4
9	11	1 2/5	1 1/2
10	9 9/10	1 4/5	1 3/5
11	9	2	1 3/4
12	8 1/4	2 1/5	1 9/10
13	7 1/2	2 1/3	2 1/10
14	7	2 1/2	2 1/4
15	6 1/2	2 3/4	2 2/5
16	6 1/6	2 9/10	2 3/5
17	5 3/4	3 1/10	2 3/4
18	5 1/2	3 1/4	2 9/10
19	5 1/4	3 1/2	3 1/10
20	4 9/10	3 3/5	3 1/4
21	4 7/10	3 4/5	3 1/3
22	4 1/2	4	3 1/2
23	4 1/4	4 1/5	3 7/10
24	4	4 1/3	3 9/10
25	4	4 1/2	4
26	3 4/5	4 3/4	4 1/5
27	3 3/5	4 9/10	4 1/3
28	3 1/2	5 1/6	4 1/2
29	3 1/2	5 1/4	4 3/5
30	3 1/3	5 3/4	4 4/5
31	3 1/5	5	5
32	3 1/10	5 4/5	5 1/4
33	3	6	5 1/3
34	2 9/10	6 1/5	5 1/2
35	2 4/5	6 1/3	5 3/5
36	2 3/4	6 1/2	5 4/5
37	2 2/3	6 1/4	6
38	2 3/5	6 9/10	6 1/8
39	2 1/2	7 1/8	6 1/3
40	2 1/2	7 1/3	6 1/5
41	2 2/5	7 3/4	6 2/3
42	2 1/3	7	6 2/3
43	2 3/10	7 4/5	7
44	2	8	7 1/10
45	2 1/5	8 1/6	7 1/4

Breadth of furrow-slice or scarifier.	Space traveled in plowing an acre.	Extent plowed per day at the rate of	
		18 Miles.	16 Miles.
Inches.	Miles.	Acres.	
46	2 1/6	8 1/3	7 2/3
47	2 1/10	8	7 3/5
48	2 1/12	8 3/4	7 3/4
49	2	8 9/10	7 9/10
50	2	9 9/10	8 1/10
51	1 9/10	9 1/5	8 1/4
52	1 9/10	9 1/2	8 2/5
53	1 9/10	9 3/4	8 1/2
54	1 4/5	9 4/5	8 9/10
55	1 4/5	10	8
56	1 3/4	10 1/4	9
57	1 3/4	10 2/5	9 1/5
58	1 7/10	10 3/5	9 1/3
59	1 7/10	10 3/4	9 1/2
60	1 3/5	10 9/10	9 7/10
61	1 3/5	11 1/5	9 4/5
62	1 3/5	11 1/3	10
63	1 3/5	11 1/2	10 1/5
64	1 1/2	11 7/10	10 1/3
65	1 1/2	11 4/5	10 1/2
66	1 1/2	12	10 2/3
67	1 1/2	12 1/4	10 4/5
68	1 1/2	12 2/5	11
69	1 2/5	12 3/5	11 1/5
70	1 2/5	12 3/4	11 1/3
71	1 2/5	12 9/10	11 1/2
72	1 2/5	13 1/8	11 3/5
73	1 1/3	13 1/3	11 4/5
74	1 1/3	13 1/2	12
75	1 1/3	13 2/3	12 1/5
76	1 3/10	13 4/5	12 1/4
77	1 3/10	14	12 1/3
78	1 1/4	14 1/4	12 3/4
79	1 1/4	14 2/5	12 3/4
80	1 1/4	14 3/5	12 9/10
81	1 1/4	14 3/4	13 1/10
82	1 1/5	15	13 1/4
83	1 1/5	15 1/6	13 2/3
84	1 1/6	15 1/3	13 3/5

THE HORNED PHEASANTS OF THE HIGH MOUNTAINS OF INDIA.

[The Horned Pheasant.]

THE Pheasants *(Phasianidæ)* form one of the most interesting groups of the feathered race, whatever be the point of view in which we contemplate them. Their beauty of form and the splendor of their hues have attracted universal admiration. Many dazzle by the metallic lustre of their plumage, which gleams with green, and blue, and gold. Such, for example, is the case with that gorgeous bird, the Impeyan Pheasant *(Lophophorus Impeyanus)* of the Himalayan Mountains, which it has several times been attempted to bring alive into this country, but hitherto without success. Others, as the Golden Pheasant of China *(Phasianus Pictus)*, delight us with the richness and multiplicity of their tints, which contrast admirably with each other. The Common Pheasant, now naturalized over the greater portion of Europe, is exceedingly beautiful, but it is far surpassed by many of its congeners, of which we may mention that elegant Chinese species, the *Phasianus Reevesii (P. venesatus*, Temm.), of which a fine specimen adorns the Gardens of the Zoological Society. It is to be observed, however, that this beauty of plumage is confined to the males; the females are universally attired in a sober dress of brown—often, indeed, exquisitely penciled with spots and zigzag lines, but totally destitute of the brilliant hues which glisten in their mates. Independently, however, of the beauty of the

Pheasant tribe, there is another point of interest which cannot be overlooked—we allude to their value as it respects the table. The flesh of all the gallinaceous birds affords to man a wholesome and nutritious food, and that of the Pheasants is, deservedly, in high estimation. Hence the introduction and naturalization of the Common Pheasant in Western Europe is a positive good; and it is desirable, therefore, to add other species to the list of those which are acclimated with us.

The Pheasants (family *Phasianidæ*) are all natives of Asia. The Common Pheasant was originally brought from the river Phasis, by the Greeks, in some of their earlier expeditions; that of the Argonauts, under Jason, has the popular credit of having introduced it. However this may be, the name given to the bird by the Greeks, (φασιανος,—in Latin, *Phasianus*)—of which all our modern European names for it are merely corruptions, points to the banks of the Phasis as the place from which it was derived; and, to the present day, the Pheasants of Mingrelia (the Colchis of the ancients) are celebrated for their beauty and size. Extreme brilliancy of plumage is, in general, the characteristic of birds dwelling in torrid regions beneath a glowing sky; such is not the case as it regards the most gorgeous and beautiful of the Pheasant tribe. On the contrary, the high mountains of the Himalaya, bordering upon the limits of perpetual snow, are tenanted by the most splendid of this family. The Impeyan Pheasant is an example in point: adapted for regions where the temperature is, at the most, only moderate, and often at a low degree, this noble bird soon dies when taken from its Alpine home into the burning lowlands of India; and hence arises one of the difficulties in the way of our obtaining living specimens in Europe. But, besides the Impeyan Pheasant, the Himalaya chain of mountains presents us with a group or genus of this family, containing a very limited number of species remarkable both for their great beauty and their characters, which indicate an affinity to the turkeys—between which group and that of the genuine Pheasants they constitute an intermediate link. The genus to which we allude is that termed *Tragopan* (Cuvier), of which three species only are known. They are easily distinguishable from all the rest of the *Phasianidæ* (at least as far as regards the male birds), by the presence of large throat-wattles, or naked carunculated flaps of skin (resembling those of the turkey), which extend from the naked cheeks, spread over the throat, and proceed down each side of the neck; while from behind each eye rises a soft fleshy horn. The whole of these appendages are capable of being contracted and dilated at pleasure, or at least in accordance with the emotions of anger, fear, &c., as we see in the male turkey: the tints of the horns and wattles are rich purple, mingled with scarlet, and are most probably changeable from one hue to another. The tail is broad and rounded, and the plumage is dotted with round spots of white on a brown or red ground, the effect of which is very pleasing.

Of the three species that are known at present, two have been but recently introduced to Science—nor, indeed, is our acquaintance with the one first described of distant date. The first species is the Horned Pheasant of Nepál (*Tragopan satyrus*). It was first described and figured by Edwards, in the third volume of his "Natural History of Birds," p. 116—partly from a drawing sent from India to Dr. Mead, and partly from a head of the bird preserved in spirits, which accompanied the drawing. Edwards's third volume is dated 1750, and his plate was etched in 1749, as appears by the date inscribed in the corner. The alliance of this bird to the turkey was not unobserved by this writer, who in his catalogue places it among that group, while in his account of it he observes that it is, "for shape of body and proportion of parts, pretty much like a turkey, and may be ranged with fowls of the poultry kind." Dr. Latham, in his "General History of Birds," states that these birds, though by no means common, "are not unfrequent in drawings done in India; and are particularly well figured in those of Mr. Middleton and Lady Impey." . . . "In the drawings of Sir J. Anstruther it is said to inhabit the snowy regions of Thibet." Its size is between that of a fowl and turkey. It is beautifully figured in Gould's "Century of Birds."

The second species is from Thibet and the Chinese borders, and was first described and figured in the "Indian Zoology," by Mr. Gray, under the title of *Tragopan Temminckii*. Of this species, as rare as it is beautiful, a living specimen, presented by J. R. Reeves, Esq., is now in the Gardens of the Zoological Society, and constitutes, as far as we are aware, the first example of one of the present group having reached our shores alive and in health. It was procured in China.

The third species is from the northern range of the Himalaya, and was first illustrated in Mr. Gould's "Century," under the name of *Tragopan Hastingsii*; the figures are those of an adult and young male, and adult female. In size this species rather exceeds the *Tragopan Satyrus*—its total length being 23 inches.

Could the Horned Pheasants, or the refulgent Impeyan Pheasant, be imported in sufficient numbers into our island (and we trust this will be soon accomplished), there is little doubt but that they might, with proper management, become naturalized. There is nothing to fear with regard to cold. They are the natives of a cold or temperate region—they verge upon the line of perpetual snow—so that the wooded hills of our portion of the globe would not be very uncongenial to their constitution. Nor would there be much difficulty in providing them with suitable food. Grain forms the staple diet of all the gallinaceous tribe; hence the Peacock of India, the Guinea-Fowl of Africa, the Common Pheasant of Asia, the Turkey of America, have equally become naturalized and have multiplied in our western regions; to say nothing of the Common Fowl, the origin of which (the Jungle Fowl) is from India, but which, from time immemorial, has been reclaimed or domesticated, and has long since spread in this condition over the greatest portion of the globe. Thus the food of the gallinaceous tribe, and the hardiness of their constitution, fit most of them, at least, for a very extensive diffusion throughout the globe; and in this we may discern a wise arrangement of Nature, inasmuch as, of all the feathered race, they are the most valuable to man, and are at once ornaments around his dwelling and wholesome delicacies on his table. If to our poultry-yard could be added the Horned Pheasants, so closely allied to them in form, habits, and general manners, they would constitute a most important acquisition, and produce a full reward for the trouble bestowed in their naturalization.

[London Penny Magazine.

READINGS FOR MOTHERS AND CHILDREN.

An early occasion was taken to announce the determination to devote some ten or a dozen pages monthly to matter suited to the heading, "Readings for Mothers and Children;" for every farmer, properly impressed with a sense of his duties to his family, will regard a provision of suitable reading for them, as the very next most indispensable provision, after a supply of wholesome bodily food. *But*, says the mother and the dear children, have you complied with your promise? Alas, we are ashamed to confess that we have not, to the extent that the mother had a right to expect, and while we are on the stool of confession and repentance, we will go further and say, though not in the way of extenuation, that in *this respect*, we have but followed the bad example of too many farmers, who, in their domestic management, seem to think, that of all people on the place, the *good housewife* is the one who will bear most patiently, and with whom, therefore, the greatest liberties may be taken. Hence you will see that on every emergency her province is invaded by the hand of power—her property is seized upon, her forces taken and put to other work, —her garden abandoned to ill weeds that "grow apace"—her dairy utensils polluted to unclean uses—*her* bridle *borrowed*, *her* horse put in the plough, *her* house-gang sent into the field, *her* poultry stinted in their allowance, and sometimes her very pillows stript of their cases to be sent, now to the mill, with a little choice grain, and next to the store for sugar! But where should we stop, were we to enumerate all the liberties that are taken with the good, easy housewife? Were we to recount all that we have noted, though it may be without giving speech to what we have thought about the wrongs of the housewife, truly we could *write a book* on the subject, nor are we sure but that some of these days we will, if—we could hope they would ever be allowed to see it. But, all jesting apart—and "there are many true words spoken in jest,"—of all the relations and duties of the housewife, that in which she has ever appeared to us in a light most admirable—we had almost said *holy*—is when she unites the office of *mother and instructer* to her children. Alas, they are themselves too often not well enough instructed to appreciate or fulfil the obligations of a trust so sacred. Say what we will about schools and systems of education, it is the mother after all who "teaches the young idea how to shoot," and every farmer knows that "as the twig is bent, the tree 's inclined." The great study in the management of the young mind of the child, should be as with the young body of the colt or the calf, to provide it with *suitable, nourishing, and improving food*—not to gorge and surfeit either, but to promote a constant normal condition and progress, at the true period of growth. When children have passed into the world, and been consigned to the exclusive care of the teacher, or employer, or boss, as they call it in the towns, beyond the ever-watchful eye of the mother, generally their character has already taken its *set* for good or for evil, and hence the vast importance of attention to the mind and morals of daughters who are to be mothers. It is but partially, and to a very limited extent, we can aid in the important work; but that little, with the leave and aid of our husband and parent readers, we will endeavour to accomplish. If what we have given in this department, in the last year, has not been so extensive, we have yet desired to make it unexceptionable and somewhat attractive The heading is not continued in each consecutive number, because that would disfigure the little *book* which finally we propose to make of these Readings for Mothers and Children, in which we can at least promise that nothing shall ever appear which the most sensitive and cautious mother shall deem necessary to keep from the eyes of her beloved offspring.

We have deemed so much not out of the way, in the commencement of a new volume, and as introductory to one of the best essays which has fallen lately under our notice, on the subject of education, and which reached us lately in a public journal—one of the most dignified, wise, and conservative of all that is good and praiseworthy, that ever yet lived to instruct and benefit the age of its existence, and to guide him who, in an age to come, shall write impartially the history of these times.

The following was marked No. 2. We could wish we had them all.

PARENTAL EDUCATION.

[For the National Intelligencer.]

It is much easier to find faults than to correct them; but one thing is certain, if faults are not seen, or pointed out, they will not be corrected. However unpleasant it may be to see our faults, he nevertheless would be considered our best friend who kindly places the truth before our eyes. It is well if we have friends who can point out faults to which we may be blind. Perhaps no relation in life affords more striking instances

of blindness to one's own faults than that of the parent. Thousands of parents have good theories on family government, and can readily see their neighbours fail; yet, though grossly at fault themselves, they never mistrust but that they are perfect paragons in the art. These mistaken views are easily accounted for upon well known principles. There is an old homely proverb, "Every owl thinks its own young ones prettiest," quite to the point.

This feeling arises from a necessary principle of our nature, and is not to be condemned; for, when it is under the control of a sound and well-directed judgment, it tends to the most perfect parental discipline. Under its influence the parent will make almost any sacrifice which he imagines will be best for his offspring. If it is guided by true wisdom, the parent will sometimes be willing to deny a present gratification to a child for the sake of a future and more solid good. Very many look no further than the present. If they bestow a special favour upon a child, it is to secure a present object; the *tendency* and *results* of such favours are not considered. If they inflict chastisement, it is in a fit of anger, or while they are smarting under the aggravation of the offence; so that a child, feeling the punishment to be retaliatory, will muster all the energies of a bravo to defeat the end of punishment. Here is a prominent difficulty. A fault like this is most prolific of evil results. Those parents guilty of it are not unlike the ignorant and indolent gardener, who may think that the native goodness of the useful plant is so great as to outgrow the noisome weed. Through fear of hurting the plant, or lack of physical energy, he allows the weeds to grow to the injury or ruin of the plant. Or it may be that in a fit of astonishment at the rapid growth of the useless weeds, he dashes among them with a ruthless hand, makes devastation among both weeds and plants, and leaves great numbers unextirpated, and embedded, or slightly concealed, under his work of destruction, which will again spring up to his mortification.

The true end of parental discipline cannot be gained without impartial observation and *unhesitating decision in checking the first manifestation of wilful disobedience.* This disposition will exhibit itself in every child which has common sense and spirit enough to do any hurt or good in the world. No doubt it will appear earlier in some children than in others, but when it does appear *it must be checked; and it must be checked and subdued as often as it appears.* Too many parents seem not to know nor feel the importance of *strict attention to this particular.* Often when they see wilful and determined resistance to their wishes, their misguided affection influences them to pass it over with the common excuse that the *child is too young to be punished.* As this is the most critical period of the child's life, the parent needs much wisdom and discretion to know when and how to exercise authority. The seeds of disobedience are sown broad-cast in human nature; and they will germinate and grow; but just as soon *as they can be readily discovered,* as soon as the will of the child becomes opposed to the parent, then *true affection* and *regard for the child* require a course of *thorough and unrelaxed discipline.* If this is neglected too long, the child will get beyond control—his will gains strength, becomes unyielding, and though apparently subdued, yet, by its own native elasticity, it resumes its former position when restraint is removed.

PENMANSHIP.

Few parents, as we apprehend, highly enough estimate, and often enough think of the importance of an early acquirement of a good hand-writing—*chirography,* as it is more learnedly called. This is one of the things to be attended to in the *very beginning* of learning to write. A boy should not be allowed to write even the shortest exercise in a slovenly or careless manner. We *men* are too apt to regard this as an affair of trivial importance, susceptible of rectification at any time. Than this, there can be no greater, or for the little boy or girl, more mischievous delusion. There is no habit which requires more care in its formation, or which, when formed, becomes more fixed and unalterable than the formation of the hand-writing. We remember once asking an old friend, among the purest and best men it has been our fortune to know—George McKubin, of Annapolis, Maryland—to account for what struck us as a remarkable coincidence—the neat, fair, perfectly legible hand-writing of himself and his school contemporaries and class-mates, with whom we were then in daily association in the office of the late very able and very benevolent Chancellor Johnson, of Maryland, then Attorney-general, and afterwards Chancellor of the State, as one of his exemplary sons is

now Chancellor of the same State, and the other Attorney-general of the United States. Well, the ready answer of Mr. McKubin was, that old Father McDowell, for years the honoured President of St. John's College, would never receive from any young gentleman under his instruction, any exercise or other writing that was not presented on clean, nice paper, neatly, and as well written as the boy *could* write. If defective in any of these particulars, no matter how well executed otherwise, it was at once rejected as unworthy. This kept them on the *qui vive*, and so all grew up in the possession of a penmanship, with which alone, if need be, any one of them, of otherwise good habits, might make a living. It must, however, be admitted, since he has been unexpectedly referred to in this connection, that the present Attorney-general could never have risen to his present elevated position by any such accomplishment. It must have been, we conclude, by force of head rather than of hand-writing. We presume the venerable McDowell had either left the College or was tempted to excuse the unseemliness of the chirography, in consideration of the high promise of the youth in other even yet more important accomplishments.

Lately, by chance, our eye fell upon the manuscript exercise of a youth of some 12 or 13—P. Howard Brice—grandson of the venerable Judge Brice, of Baltimore, (we like to give the name of deserving boys,) so excellent for its fairness, legibility, and ease, that we could not forbear telling him that in that alone he had already secured the means of a comfortable subsistence.

If ourselves young, and had but $1000, as we have not as many dimes, we would give them to possess such a penmanship. Can we say more to impress on mothers our own idea of the importance of attending to the first essays of their children in writing?—for let us repeat, it is in the first lessons of a year or two that the habit is contracted for good or bad.

FISHING.

A FRIEND with whom I have enjoyed many an agreeable day's fishing, and whose excellence of heart and mind, as well as his attainments in the science of the angle, would have procured him the friendship of Izaak Walton, had he lived in his time, (which, luckily for myself and his other friends, he did not,) has allowed me to insert the following shrewd remarks on fly-fishing, written by him in the album of a celebrated fishing club; not, he says, as sure guides, but loosely thrown out to provoke contradictions from the expert, and to elicit truth.

MAXIMS AND HINTS FOR AN ANGLER.

BY A BUNGLER.

1. Are there any fish in the river to which you are going? Having settled the above question in the affirmative, get some person who knows the water to show you whereabouts the fish usually lie; and when he shows them to you, do not show yourself to them.

2. Do not imagine that, because a fish does not instantly dart off on first seeing you, he is the less aware of your presence: he almost always on such occasions ceases to feed, and pays you the compliment of devoting his whole attention to you, while he is preparing for a start whenever the apprehended danger becomes sufficiently imminent.

3. When you are fishing with the natural May-fly, it is as well to wait for a passing cloud, as to drive away the fish by putting your fly to him in the glare of the sunshine, when he will not take it.

4. If you pass your fly neatly and well three times over a trout, and he refuses it, do not wait any longer for him: you may be sure that he has seen the line of invitation which you have sent over the water to him, and does not intend to come.

5. If you are above a fish in the stream when you hook him, get below him as soon as you can; and remember that if you pull him but for an instant against the stream, he will, if a heavy fish, break his hold; or if he should be firmly hooked, you will probably find that the united strength of the stream and fish is too much for your skill and tackle.

6. I do not think that a fish has much power of stopping himself if, immediately on being hooked, he is moved slowly with the current, under the attractive influence of your rod and line: he may then be at once brought, by a well-regulated exercise of gentle violence, to the bank, from whence he is to be instantly whipt out by an expert assistant.

7. If, after hooking a trout, you allow him to remain stationary but for a moment, he will have time to put his helm hard a-port or a-starboard, and to offer some resistance.

8. Bear always in mind that no tackle is strong enough, unless well handled. A

good fisherman will easily kill a trout of three pounds with a rod and line which are not strong enough to lift a dead weight of one pound from the floor, and place it on the table.

9. Remember that, in whipping with the artificial fly, it must have time, when you have drawn it out of the water, to make the whole circuit, and to be at one time straight *behind* you, before it can be driven out straight *before* you. If you give it the forward impulse too soon, you will hear a crack. Take this as a hint that your fly is gone to grass.

10. Never throw with a long line when a short one will answer your purpose. The most difficult fish to hook is one which is rising at three-fourths of the utmost distance to which you can throw. Even when you are at the extent of your distance, you have a better chance; because, in this case, when you do reach him, your line will be straight, and, when you do not, the intermediate failures will not alarm him.

11. There are only two cases in which a fish taking an artificial fly will infallibly hook himself without your assistance, viz.: when your fly first touches the water at the end of a straight line, or when you are drawing out your fly for a new throw.

12. If your line should fall loose and wavy into the water, it will either frighten away the fish, or he will take the fly into his mouth without fastening himself; and when he finds that it does not answer *his* purpose, he will spit it out again before it has answered *yours*.

13. When you are using two flies, you may sometimes catch a fish with one of them, and a weed growing in the river with the other; when such a *liaison* is once formed, you will find it difficult, with all your attractions, to overcome the strong attachment of the fish to your worthless rival. If the weed will not give way in this awkward juncture, you must proceed to extremities, and "then comes the tug of war;" and your line is quite as likely to break between you and the fish, as between the fish and the weed.

14. When, during the season of the May-fly, your friends, the gentlemen from London, say that they "have scarcely seen a fish rise all day," do not too hastily conclude that the fish have not been feasting on the fly. The only "rising" which is seen by the unlearned, is the splash which is made by a fish when he darts from a considerable depth in the water to catch a fly on the surface. There is, however, another sort of "rising" which is better worth the skilful angler's attention, viz.: when a fish is seriously feeding on the fly, he stations himself at no greater depth than his own length; and making his tail the hinge of his motions, he gently raises his mouth to the top of the water, and quietly sucks in the fly attempting to pass over him. A rising of this sort is not easily seen, but it is worth looking for; because, although a fish feeding in this manner will rarely go many inches on either side for a fly, he will as rarely refuse to take one which comes (without the gut touching the water) directly to him.

15. If your fly (gut unfortunately included) should swim over a fish without his taking it, look out well for a darting line of undulation, which betokens his immediate departure; and remember that it is of no use to continue fishing for him after he has gone.

16. The stations chosen by fish for feeding, are those which are likely to afford them good sport in catching flies, viz.: 1. The mouths of ditches running into the river. 2. The confluence of two branches of a stream, which has been divided by a patch of weeds. 3. That part of a stream which has been narrowed by two such patches. 4. Fish are also to be found under the bank opposite to the wind, where they are waiting for the flies which are blown against that bank, and fall into the river.

17. When you see a large fish rising so greedily in the middle of a sharp stream, that you feel almost sure of his instantly taking your May-fly, I would advise you to make an accurate survey of all obstructions in the immediate neighbourhood of your feet, of any ditch which may be close behind you, or of any narrow plank, amidst high rushes, which you may shortly have to walk over in a hurry. If you should hook the fish, a knowledge of these interesting localities will be very useful to you.

18. When your water-proof boots are wet through, make a hole or two near the bottom of them, in order that the water, which runs in while you are walking in the river, may run freely out again while you are walking on the bank. You will thus avoid an accompaniment of pumping-music, which is not agreeable.

19. Never mind what they of the old school say about "playing him till he is tired." Much valuable time and many a good fish may be lost by this antiquated proceeding. Put him into your basket *as soon as you can*. Every thing depends on the manner in which you commence your acquaintance with him. If you can at first prevail upon him to walk a little way down the stream with you, you will have no difficulty afterwards in persuading him to let you have the pleasure of seeing him at dinner.

20. Do not leave off fishing early in the

evening because your friends are tired. After a bright day, the largest fish are to be caught by whipping between sunset and dark. Even, however, in these precious moments, you will not have good sport if you continue throwing after you have whipped your fly off. Pay attention to this: and if, after dusk, you have any doubt, you may easily ascertain the point, by drawing the end of the line quickly through your hand, particularly if you do not wear gloves.

21. When you have got hold of a good fish which is not very tractable, if you are married, gentle reader, think of your wife, who, like the fish, is united to you by very tender ties, which can only end with her death, or her going into weeds.

If a friend should invite you to his house, saying that he will give you "an excellent day's fishing," you ought not to doubt his kind intention, but do not feel very sure that you will have good sport. Provide yourself for such a visit with every thing which you may want, as if you were going into an uninhabited country. Above all things, take a landing-net with you. Your friend's (if he has one) is probably torn and without a handle, being a sort of reticulated shovel for taking fish out of the well of a punt.

The following is an "*over-true*" tale:—Piscator went last week to the house of his friend Mr. Jenkins, for a few days' fishing. He was received with the utmost kindness and hospitality, and on the following morning, after breakfast, the gardener (who was on that day called the fisherman) was desired to attend him to the river. Piscator, who had a landing-net of his own, begged to have a boy to carry it. Jack was immediately sent for, and he appeared in *top* boots, with a livery hat and waistcoat.

Arrived at the water side, Piscator gave his gnat-basket to the boy, and told him to go on the other side of the river, and look on the grass for a few May-flies. Jack said that he did not exactly know what May-flies were, and that the river could not be crossed without going over a bridge a mile off. Piscator, as suits his calling, is a patient man; so he began to fish with his landing-net for a few May-flies, and after he had necessarily frightened away many fish, he succeeded in catching six or seven flies.

Working one of them with the blowing line much to his own satisfaction, and anxious to extract a compliment from his attendant, he said, "They do not often fish here in this way, do they?" "No," said the boy, "they drags wi' a net; they did zo the day afore yesterday."

Our angler, after much patient fishing, hooked a fine trout; and having brought him carefully to the bank, he said, "Now, my lad, don't be in a hurry, but get him out as soon as you can." Jack ran to the water's edge, threw down the net, and seizing the line with both hands, of course broke it immediately.

Nothing daunted, the pertinacious angler mended his tackle and went on fishing; and when he thought, "good, easy man," that the very moment for hooking another trout was arrived, there was a great splash just above his fly; and the boy exclaiming, "Dang it, I missed 'un," instantly threw a second brick-bat at a rat which was crossing the river.

Mine host, in order to accommodate his friend, dined early; and when he went after dinner to enjoy the evening fishing, he found that the miller had turned off the water, and that the river was nearly dry. So he went back to tea.—*Rod Cottage, River-side.* R. P.

EVER LEARNING.

MAN, though destined to immortality, will never acquire a complete knowledge of the whole range of the Creator's operations, even during the endless existence which lies before him; for his faculties, however much expanded in that state, will be utterly inadequate to grasp a scene so boundless and august. It will be a part of his happiness that he will never be able to comprehend the universe; for at every period of his future existence he will still behold a boundless prospect stretched out before him, with new objects continually rising to view, in the contemplation of which, innumerable ages may roll away without the least apprehension of ever arriving at the termination of the scene. Were a superior intelligence ever to arrive at such a point, from that moment his happiness would be diminished, his intellectual powers would lose their energy, his love and adorations of the Supreme would wax faint and languid, and he would feel as if nothing new and transporting were to be added to his enjoyments throughout all the periods of his future existence. But the immensity of the universe, and the boundless nature of the dominions of "the King Eternal," will for ever prevent any such effects from being produced in the case of all virtuous and holy intelligences.—*Dick's Sidereal Heavens.*

MANUAL OF MANNERS.

CHOICE OF BOOKS.

On the choice of books, much more may be said than seems necessary here. Those that are useful and agreeable are always preferable to others which are merely intended for filling up an idle, or amusing an uneasy hour. Time spent in perusing books of mere amusement, is time wasted. Those which, in informing the mind, entertain also the fancy, are the most to be recommended; but in reading, as in every thing else, a regular plan must be adopted, if it is to be of any permanent advantage; mere desultory reading being profitless and unsatisfactory. Dr. Johnson once observed, "that if any man would employ in reading that time which he would otherwise waste, he would answer for it, if he were a man of ordinary endowments, that he would make a sensible man." Desultory reading, it is true, is better than no reading at all. The learned moralist quoted owed the greater part of his vast acquirements to his practice of reading some part of every book that came in his way, and never losing an opportunity of storing his mind with information. He used to advise young people never to be without a book in their pocket, to be read at by-times, when they had nothing else to do. "It has been by that means," said he, "that all my knowledge has been gained, except what I have picked up by running about the world, with my wits ready to observe, and my tongue ready to talk. A man is seldom in a humour to unlock his bookcase, set his desk in order, and betake himself to serious study; but a retentive memory will do something;"—and no time is lost that is devoted to judicious reading.

At the present day, so many new publications are continually issuing from the press, that a proper distribution of time as regards reading is absolutely necessary, to enable any reader, however constant, to keep pace with a tithe of the books on subjects interesting to him, that he would wish to peruse. To enumerate what books ought to be read, would be out of place in a work of this kind; but a few remarks may be hazarded as to selection of subjects for perusal.

Youth is the most fitting season for cultivating and improving the mind. History should early form the most prominent part of reading. This kind of information, which will always prove useful, is indeed indispensable. The reading of poetry forms a pleasing, and indeed to some persons a necessary recreation in the midst of more important studies.

What is called light reading is not always to be rejected, for there is sometimes much knowledge of the world displayed in it; but it ought to be selected with judgment.

Novels form a species of reading entirely apart from all other kinds. Their principal object is entertainment; and when from the pen of a skilful and experienced writer, the sketches of life and manners which they contain render them at all times agreeable, and generally instructive companions. Care should be taken, however, that novel-reading does not become a habit; for, when it does, it is very difficult to get rid of, and is calculated to do more harm than even a passion for the theatre. Moralists usually object to novels; but simple and harmless recreation, in whatever shape it comes, ought not to be objected to, provided it does not take the place of better employments, or generate a taste for unworthy pursuits. Formerly, novels were not fit to be put into the hands of youth; but an essential improvement has taken place both in the matter and the manner of these productions; and although young persons ought not to be allowed to choose them indiscriminately, they certainly should not be prevented from occasionally reading a good one, that they may see the manners of society even through an artificial source, and learn what is doing in the current literature of the day. Romances ought to be rejected entirely.

When it is recollected that a habit of judicious reading acquired in youth will bring delight and enjoyment to age, it ought to be assiduously cultivated as opportunity offers; intellectual pleasures being the purest and most lasting of all.

"The finest rule," says Legh Richmond, "I ever met with, in regard to the choice of books, is this:—'Books are good or bad in their effects, as they make us relish the word of God the *more* or the *less* after we have read them.' There are too many valuable books, on a variety of subjects, which ought to be read, to allow of time to be dedicated to unworthy and useless ones."

PUNCTUALITY.

In every requirement of life, punctuality is indispensable. In business, it is so necessary that it has become a proverb. To ensure your own comfort and respectability, it is essentially requisite that you should in all things be punctual; although too much nicety in any thing—that is, a rigid exactness, an uncalled-for scrupulousness—is to be carefully avoided. As regards the demeanour, such a habit would lead to punc-

tiliousness, and in dress to precise formality or effeminacy. But punctuality is a very different principle, and ought to be sedulously attended to, in all the transactions in which man is engaged. In correspondence, particularly, it ought to be the invariable rule. Besides the embarrassment and confusion which arise from the accumulation of unanswered letters, there is a danger of loss of friends by neglecting to acknowledge their communications till it is too late. This would easily be prevented by following the Duke of Wellington's plan, and answering every letter, no matter on what subject, if it requires an answer, as soon as you can after receiving it. The late Sir John Sinclair, Bart., declared that he once caused an influential supporter of his own to become a determined and active enemy, by delaying to reply to a note which he had received from him some time previous to his election for Caithness; and this proved a very salutary lesson to him for the future.

It was the advice of Lady Percival to a young acquaintance, that "when he had made friends, never to lose them through neglect, although they might not be immediately near." The young and high-spirited are very apt, in the allurements of society, or from an undue attachment to their own pursuits, to forget persons who have been kind to them, and thus often lose, through neglect, the good services of many who might otherwise have essentially befriended them.

Punctuality as regards truth is the soul of confidence. A person who, even in one instance, should fail to be punctual, is not willingly trusted again.

There is one species of punctuality which is most essential to comfort—and that is, as regards a dinner invitation. Some people think that, by arriving a little *before*, or precisely *at* the hour appointed, they will be considered as having come too soon, while the not coming till a little beyond it adds to their importance. But this is a mistaken idea. In genteel society, no family waits beyond the hour fixed; and if you should arrive after the company have taken their places, you will be received, for form's sake, with as much courtesy as the rest, but you will be deemed by all present ignorant of what is right. The want of punctuality, when it thus causes an interference with the comforts, or a change, though momentary, in the arrangements of others, is extremely reprehensible.

Punctuality as to time is very important. In making an appointment with any one, you are bound, both in honour and duty, to keep it exactly at the hour; for, however much you may be disposed to squander away your own time, you have no right to waste that of another which may be pressing and valuable; and you would not like to be kept waiting yourself.

In conclusion, under this head, it may only farther be observed, that by being always punctual, you will best consult your own convenience, and that of others.

CONFIDENTIAL INTERCOURSE.

THERE is no purer pleasure in life than what springs from friendship when founded on esteem. We should early accustom ourselves to the cultivation of those qualities and recommendations which will gain friends, and never neglect any means, consistent with propriety, to secure and preserve them when once obtained. It was a saying of Dr. Nicholls, that to form intimacies, and choose for our friends only persons of known worth and integrity, is a point of wisdom. By doing so, we shall be sure to retain them as long as our conduct entitles us to the continuance of their good opinion.

Among young persons, confidential intercourse is often the consequence of newly-formed attachments. Without reflection or discretion, many persons of open and sanguine temperament attach themselves to a favourite companion and make him the confidant of all their thoughts and feelings. There can be nothing more pleasing than this, so long as it lasts. Distrust is not the inmate of the youthful breast. In more advanced life, however, it requires tact to choose, and prudence to retain friends; and, as a general rule, it ought to be kept in mind that unreserved confidence should not be placed in any one. The best policy certainly is, to be very guarded as to informing any one of your affairs or plans; because there is no security against your being deceived, if you do so; and undue familiarity never yet was known to be productive of any good.

There are those who, for their own ends, will worm themselves into your confidence; and when they have obtained their object, will turn your unreserved communications made to them against yourself. Secrets affecting your happiness, your feelings, or your prospects in life, which you have told with a perfect reliance on their honour, will be divulged without shame by many who, having no farther interest in retaining your friendship, will betray your confidence, and ridicule your foibles, for the sake of a heartless laugh.

Any one who keeps a diary is a dangerous person to admit to any degree of confi-

dential intimacy, as, in his affected ambition to chronicle every thing he sees and hears, your most unguarded observations will not escape being transmitted to his flippant pages. To write a journal of this description is a mark of the most consummate vanity, as well as a strong proof of an idle disposition. He who is guilty of the practice, unless his station or his character authorizes it, is generally a coxcomb, whose chief characteristic is a want of judgment, but whose real error, if it should not be called by a stronger name, is an utter want of principle. A person who would thus unnecessarily take a liberty with those unreserved communications which ought to be held sacred, and, from a spirit of arrogant presumption, can calmly set himself down and betray your most cherished secrets, would not scruple to pick your pocket, were he not restrained by the fear of punishment and exposure, rather than by any motive of moral responsibility. At the same time, to keep a diary of daily events and occurrences, for the purposes of information and reflection, and not merely for showing off, and making idle observations on persons and things, will be found to be a useful habit, especially in matters of religion.

LINKS IN THE CHAIN OF NATURE.

It is very difficult to trace satisfactorily "the links of Nature's chain," in the several gradations by which they connect animal and vegetable beings. These links are as numerous as they are wonderful. Some of them are evident enough, but we are at a loss to determine whether others should be classed amongst animals or vegetables. Mr. Edwards seems to think that many of them may be deemed of a middle nature, partaking of both; for, though some of the polype and coralline species seem to adhere by roots, and increase, as vegetables do, by shooting forth young polypes from their sides, and by becoming perfect polypes from the divided parts of others, which are marks of vegetation, they have at the same time a power to move their parts, and put forth tentacula, or arms, with which they catch small insects, whereon they feed, thereby showing that they partake of an animal nature.

A person lately sent me an animal which fishermen call a sea-mouse, and which seems to partake of the properties of both fish and insect. It was about three inches and a half in length, and was covered with beautiful silky hair on the sides, which put forth a variety of colours in the sun, like spun glass. The belly appeared like that of the wood-louse; and, like that insect, it had the power of rolling itself up on being disturbed. On each side of the belly there were twenty or thirty little fleshy excrescences, each of which had five or six black hairs in it, about a quarter of an inch long, with which the creature moved itself along. It is, I believe, an aphrodita, and is called by the French naturalists, *la taupe de mer*.

The humming-bird moth (*Sphinx stellatarum*) might almost be thought also to be a link between the bird and an insect. It hovers over flowers in a most rapid and elegant manner, as the humming-bird is said to do—unfolds its long tongue, and extracts the honey from flowers, making a humming noise the whole time. Its motions are so rapid, especially on a sunny day, that it is extremely difficult to follow them. There is also a wildness in its habits which partakes very much of those of a bird.

SOCIAL CHAT.

Delightful is an evening's cheerful chat
With pleasant friends, especially to one
Who has been long away. The minutes run
With speed that all the talkers marvel at.
So much to talk about—so much to tell—
So many sleeping memories to awaken—
The various fates that absent friends befell—
Whom time has spared, and whom the grave has taken;
The tear to shed for those who've pass'd away—
The sigh to breathe for those who've gone astray—
Our times of darkness, and our days of light—
Our purposes and plans for coming years—
Our heavenly hopes, our earthly human fears—
And lo! 'tis time to say, "Good-night, dear friends, good-night!"

Mackellar.